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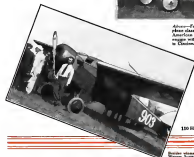
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This view shows how Aerol Struts are installed between the landing gear and fuselage. "A" is the stationary cylinder. "B" is the sliding piston attached to the axle allowing piston freedom of movement yet effectively absorbing destructive shock before it reaches the landing gear.

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Tex as he finished his record-breaking flight

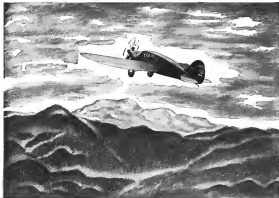
This is now granted by the Mexican chief of police

The landing at Agua Caliente

The official check-up



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The first winner of National Air Derby was won by a Mono plane piloted by Francis Farquhar Oakes. Mr. Oakes did the entire "Standard Route" trophy for his place in the air. The plane did also the "Aerial Trophy" which was awarded for the most efficient performance of all planes in the field. The course was from Santa Monica, Cal. to Cleveland, Ohio, a distance of 1,725 miles, in 24 hours, 16 minutes and 35.9 seconds time elapsed. Miss Oakes also won the Women's 50 mile race.

The 50 mile closed course event for women of 500 cubic inch displacement was won by Yvonne Roberts in her Monoplane "Little Snowflake". Second, fourth and fifth places were also won by Monoplanes in this race, conclusively proving the consistent superiority of Mono Aircraft. Competing against planes powered with engines of much greater horsepower, Yvonne Roberts' Mono-type took second place and Yvonne Roberts placed third in the 100 cubic inch class.

On the final race, Philadelphia to Cleveland a Mono-type piloted by Ray Bennett took second place, as did the Mono-type piloted by Leslie Downman on the flight from Miami Beach to Cleveland.

Mono Aircraft planes are designed and engineered especially for the present day. Their popularity and approval in aeronautical circles is due to the superior advantages they offer in performance, safety, ease of control, comfort, speed and economy. They possess the highest performance and outstanding value in efficient value.

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MOLINE ILLINOIS



THE OLDEST AMERICAN AERONAUTICAL MAGAZINE

A. McNamee & Co., Publishers CHICAGO, ILL.

EDWARD F. WARNER, Editor

VOLUME 57 . . . September 28, 1929 . . . NUMBER 22



The Railroads Take Alarm

THE COMBINED rail-air services so rapidly subscribed to all the great terminal stations are not the only evidence of the anxious care with which railroad officials are watching the development of air transport. Equally significant is the sudden attention given to the speeding up of schedules which had been good enough in their present form for many years, and the willingness displayed to increase the numbers of extra fast trains operated. If a balance were to be cast upon the services of the airplane a few months hence, it would have to be credited not only with its direct use by its own patrons, but with indirect benefit to all who travel upon the rails. It has done what the motor has failed to do. It has brought at least a suggested threat of competition in the limited time of time.

Rail service between New York and Chicago is slower now than it was twenty years ago. The eighteen-hour train is no more, but in the future the number of twenty-hour services each way is to be nearly a dozen instead of only two as it was last week. Plans are reported to speed up twenty per cent in the trip between New York and Boston. In the West where automobile was a flower of earlier times than in the Eastern states, the same tendency showed itself earlier, and the so-called transcontinental systems have been diligently engaged during the last three years in clipping hours from their running time with its inevitable drawbacks unknown since the days of Elmore.

Of course it would be absurd to take too literally the title that has been set upon this editorial. Air traffic is but an infinitesimal fraction of that going by rail. The present air traffic could be multiplied by twenty without reducing the total revenue of the railroads by more than a fifteenth part. Their officials need feel no uneasiness about the effect of direct competition in the immediate future.

The railroads' interest in the subject springs from

Next week's AVIATION, under date of October 5th, will be a Statistical Issue, and will be devoted primarily to a statistical and graphical survey of the present state of aeronautics and its historical development at home and abroad. It is suggested that readers writing club copies for preservation place orders in advance.

other causes. The crowing of the airplane has fired the attention of the traveling public upon speed as a desirable element in transportation. The passenger upon the Pullman car has looked upon air schedules, and he has become discontented. The speeding up of service is an effort to ally his discontent before it becomes too vocal.

In the long run and not such a very long one at that, nothing better could happen for air transport. Both passenger service and air mail still suffer from an inadequately analyzed public misconception of their existence. Anything that leads the business man to think and talk and read about speed leads him also to think of air travel, and to have it in mind when the time comes to use it. The air-line need not fear competition upon this head. Railroad running time can never be reduced to anywhere near what the airplane can show. The traveler who will forsake a 24-hour train for an eight-hour airplane will still make the switch in most cases even if the train schedule has been trimmed to twenty hours.

For twenty years speed of transportation has been hoisted in the abstract and almost neglected in practice. Both on the rails and on the Atlantic, the standing records have been those of 1910. The airplane has made speed once more a live issue. The race body it becomes, the more the airplane, the unchallenged premier in that quality, will benefit.

Airport Specifications

THE TIME HAS COME to give thought to the airport of the future, and especially to the people by whom it is to be designed. Airport engineering has so far been to an unusual extent, not to say suspicious state, joint midway between the civil and aeronautical branches of the engineering profession. Airport planning and construction combine problem peculiarly demanding aeronautical experience with others pertaining to straight civil engineering and having nothing to do with aviation.

That airport work will continue to be a specialty there is no doubt, but it is likely to be a subdivided one. The specialties will be either aeronautical engineers with a little knowledge of highway and building construction, grading and drainage, or civil engineers with a little knowledge of aeronautics. The two parts separate naturally. Planning the general layout of an airport demands but little training upon the details of methods to be used in its construction. Leveling the surface and laying runways requires an acquaintance with the principles of flight. A runway is like any other road in principle. Designing an airport is essentially like drawing a site for any other purpose. The aeronautical man ought to be exempt from worrying about the relative merits of various types of drain pipe and surfacing materials.

To bring the two parts of the work together there must be definite specifications which have so far been hard to secure. The aeronautical expert must try to tell detail what he wants, and leave it to the civil engineer to decide how it can best and most economically be provided. The length and the width of the runways, the maximum permissible slope of the runways or of any other part of the field, the capacity and completeness of the drainage of the surface, the surface hardness, the freedom from ruts more than a stated minimum of dust under definitely stated conditions, the permissible color of the runway, possibly affecting night landing, these and other similar points must be definitely stated and then the civil engineer should be relied upon to do the rest.

We so far lack most of these specifications, except upon size and shape. We are completely lacking in the elementary data for some of them, but for others only the effort is wanting. The Department of Commerce, the airport section of the Aeronautical Chamber of Commerce, and such special conferences of airport executives and city engineers as are occasionally held should concern themselves urgently with this matter. Those who are best qualified to make the decision should look a few years into the future and decide what sort of pavement a hard surface runway ought to be able to stand, how bad the drainage after a heavy rain may be without losing the field the right to a dust A rating, and other matters of that nature. There should be standard specifications for more definite than now exist, for

various classes of service. Not only will that simplify the planning of airports, but it will give the pilot an added means of assuring himself when he approaches a new field for the first time and finds it marked on his map as complying with a certain set of requirements its structural properties of what kind of a landing surface it will afford.



Technical Note on the Schneider

THE RACE run at Calicut produced one important surprise. It showed that increase of engine size is still the road to travel in search of higher speed.

Three years ago many engineers were convinced that the end of the process of increasing top speed by stepping up engine size had been reached, and that to put in bigger engines beyond the point then reached would require increase of wing area and parasite resistance at least proportionate to the increase of power, so that the net gain would be nil. Recent events seem to prove them wrong.

As between the two British types developed for the Schneider Race, the winning machine was certainly less clean in appearance form and showed less attention to minute details affecting parasite resistance, than its rival for place on the team. All observers agree on that. Even allowing for all the trouble experienced with curlew-like the Gloster Scaphere, there seems but little likelihood that it could have equaled the speed of the Sopwith under the best conditions, and the reason lies plainly in comparison of the engines. The winning machine had the larger engine, larger in every respect. Power triumphed over small foreign service and cleanliness of aerodynamic detail.

Aerodynamic design of course remains important as a speed factor. It cannot be put lightly aside, but it would seem that any racing machine of reasonably clean form will be no closer to the ultimate limits of possibility in the reduction of parasite resistance than the probable variations of engine between two types well generally known the deciding factor. There is no indication as yet that any firm on the profit from increasing brake force by increasing engine dimensions is so right. Engine power has been quadrupled in the last six years, with an increase in speed of approximately one third, and racing machines, which used to be permit planes trimmed down in size and weight, have become big airplanes. The plane winning the Schneider trophy this year weighed nearly a thousand pounds more than the standard two-seater 400 hp observation airplane of the United States Navy. Projecting the curve of recent tendencies forward it appears that the Schneider Race of 1938, if one is left in that year, will be won by a plane using at least 2,300 hp, to carry the pilot around the course.

The President Picks an Envoy

IN NAMING Harry F. Guggenheim as the American Ambassador in Havana, the President confers a great honor upon a citizen who well deserves it. He invests that Cuban-American relations will continue harmonious, and that an opportunity of promoting co-operation will be overlooked. He sends to a country bound to us both by geographical proximity and by ties of sentiment, a country for whose very independence existence the United States was originally responsible an Ambassador with extended experience in Latin-American lands, acquainted with their customs and attitudes to the capabilities of their people. Appointment to the embassy at the Cuban capital carries a special distinction just when where the waters are temporarily troubled and Washington feels of investigation.

If that were all remark upon the appointment would have its place in an aeronautical journal. There is more. The aeronautical community can feel a victorious pride in the selection. It is his aeronautical work that has brought Mr. Guggenheim's capacities before the public eye. His appointment can be considered as inspired at least in part by his common services to aeronautical development. He will take his place as American aviation's first contribution to the field of diplomacy.

The aircraft industry's congratulations to the new Ambassador will have the special fervor that comes of personal acquaintance, but they will be touched by regret at losing him from his present activities. Even that cloud has its bright spot. American aviation needs a sympathetic and an understanding counselor in Havana. Now we shall have him.

The future of American aeronautics is not promised between the Great Lakes and Gulf of Mexico. The statesman who propounded the immortal query, "What have we to do with Albatross?" would get no sympathy among the builders and operators of aircraft. We must feel our way beyond our own borders, and we must help our neighbors to avoid themselves of the advantages of air transport, which some of the Latin-American countries need relatively far more than we do ourselves. We must help without tramping on native sentiment or prejudice. Our own industry will profit most by co-operating with local talent and capital to give the best possible service to the citizens of all the countries flown over.

The President has given repeated evidence of his own sense of the importance of our sharing in the development of air communications beyond the shores of Florida and the Rio Grande. He is sending to Cuba an envoy whose enthusiasm upon that point even exceeds his own. Ambassador Guggenheim can be counted on to encourage every responsible and reasonable American initiative in the aeronautical field. Is so doing he will be rendering service equally to his own people and to the subjects of the Government to which he is accredited.

Suckles Money

THERE ARE black sheep in every flock. The corn men and the gold-miner vender are always abroad in the land and they are skilled to seize their tails to the shifting winds of industry. General prosperity, combined with a boom in a new and numerically appealing industry, spell the high tide of fortune for those genies. The recent course of aeronautical development was made to order for their purposes. They have not overlooked their opportunities.

The aircraft industry, like automobiles and radio before it, has had more than its share of affliction from the financial speculators and sharpers. Within the past month there have come to the national office several prospectuses beautifully prepared and illustrated in colors, but miserably and scoundrelously fraudulent. The Better Business Bureau and the District Attorney deal with some of these, but the aircraft industry, and especially the respectable financial houses which stand to suffer from crooked competitors, will have to help to keep the industry's name clean. The control of membership in the Aeronautical Chamber of Commerce and the natural exclusion of the fly-by-night as well as of the totally inexperienced and incompetent, suggested at the Chamber meeting at Cleveland, would be a move in the right direction.

The dodges of Get-Rich-Quick Wallingford's descendants are legion, and some of them may easily within the law. One of the commonest is the purport of a partly business man, either American or foreign, a list of high-sounding sentences given the odor of authority by employing some obscure individual whose only merit is that he been the name sought for. Where the authority of the State can find no opening for attack, such efforts of the industry can protect the innocent unwary. Aside from clearing the sharper from respectable associations, the most useful measures are those of public education.

The confidence man can always sing a siren song, but he is likely to be short on substantial facts. To fail to give out full data upon the operations of reputable companies is to play into his hands. If the whole industry will make full and clear financial reports at brief intervals, as many companies make them now, the distinction between a record of accomplishment and a prospectus drawn on hot air should be easy, even for the inexperienced. The view of full information upon present operations is that it makes evident the absurdity of propositions that propose an annual manufactured output of twice the entire invested capital at a net profit of 30 per cent on the retail price of the goods sold, as well as of plans for air transport lines that entirely neglect insurance costs. Ambient atmospheric oxygen is in the budget and in the prospectus, whether it be due to ignorance or guile; the investor must be on his guard.

AN American Designer's REVIEW OF THE Schneider Race

By GROVER LOJNING



The winning Supermarine 5B landing for a prize

THIS YEAR'S Schneider Trophy Contest was, without exception, the best conducted event of its kind in the history of aviation, and was done on such a grand scale that the British deserve every possible commendation in not only having added to their own surroundings but for having helped air prestige all over the world.

The organization work was primarily in the hands of the Royal Aero Club committee headed by Count Harold Perini, and on the committee were several air experts, including Maj. R. H. Mayo, who is well-known in the States. With them co-operated a detail of officers from the Air Ministry, and in addition a committee representing the principal railroad and steamship companies operating from London to the south of England. The Southern Railway made a great feature of the Race and other business interests joined in the tremendous propaganda with posters on bill boards all over the country, and a generous supply of notices by the British press, which for a week or two before the Race built up the event to the biggest spectacular feature possible. The subsequent successful running of the Race helped greatly by the good weather and the perfect functioning of the British machines made the entire effort one of conspicuous success. The spectacle of the Race itself was, of course, a memorable one. The Solent, a body of water not unlike Long Island Sound in its width, was covered not only with yachts but with a line of large ocean steamships that had made a special towing cruise of the event. In addition two British aircraft carriers, the

"Argus" and the "Parson," and several battleships lined the course, and in such well concentrated areas that the broad sweep of the course itself was entirely clear of shipping, as well as several emergency landing lanes at right angles to the course.

Promptly at 2 o'clock, as scheduled for week, the new Supermarine 5B, piloted by Flying Officer Waghorn, took off after only a 28 sec. run in an actual 10 mile wind which just gently ruffled the water, favorably on the first round he broke the world's record and from then on the Race was an covered success. The details of the speeds of the various laps may be found in Table I.

The British pilots on the Supermarine about the same way, starting to bank gradually long before they approached the pylons, banking down their engines very distinctly and keeping to a full 80 deg bank, after which they gradually leveled off and opened up their throttle to again soar down the course. The Indian, who finished second also made turns of about this character, although he stopped upwards considerably more and recovered the distance by diving immediately after the turn. Going on the old Supermarine 55, the most consistent man winning with 2 m.p.h. in the closing of his laps and seemed to be able to wing round the pylons sharper.

THE MOST SPECTACULAR flying incident was when Cadogan made his first flying turn on the new Murex 62 at the Cowes pylon in which the water was situated near the take-off and landing area. Cadogan approached it well over 300 m.p.h. and with bank up about 80 deg when he very distinctly started to stall badly. He then, during the stall, seemed to be trying to raise a little more bank or rudder out of the plane with no success, and kept on sliding outward. We looked for him to start into a spin, but just then he stopped in the effort of turning, leveled out and headed straight inland for Cowes, actually passing over the Somerset Aerofoam, some 3 miles from the shore, after which he very slowly again repositioned a wide turn and proceeded in the direction of the course. Later it was learned that the control of the machine was difficult and that the exhaust

fares were blowing right in his face, making it very hard for him to see any reference points. He subsequently landed before completing his second round, due to this.

At one time there were three machines going round the course, and an excellent close finish in which Waghorn in the 56 passed Ted Mullen in the M55.

The imposition of speed of all these planes is of course tremendous and gives a real racing interest because they literally battle through the air and are round the course in a score after starting that the public's interest is constantly maintained.

The most surprising thing about the new Supermarine 5B was the greatly lessened noise over previous racing planes. There was, of course, a fine, low roar of the 1600 hp. Rolls Royce engine, but the screaming of moving planes that we have become accustomed to was distinctly absent.

First, the propeller was greatly streamlined, and the propeller was greatly down very close to about 1800 r.p.m. with a pitch of about 19 in. and there was absolutely no propeller blast noise on this plane. In addition the usual double vee shaped stream line wing section has been replaced on this

series by new machine stream lined wings in which the section is perfectly rounded in the nose and tapered correctly to the trailing edge. These wings are absolutely quiet in the air and only from after they are out of line, which makes it very easy to get them in line and consequently achieve the minimum of resistance. One was referred by the engineers to charge that an estimated increase of speed of 8 to 10 m.p.h. was attributable to the use of these wings on the plane.

The inclined details of the six planes have 600 sq. yds. completely disclosed, and only a few of the major data are available. The Supermarine 56 weighed fully loaded with 110 gallons of gas, about 5000 pounds, the wing loading was about 30 lb. per sq. ft. and the horsepower in the neighborhood of 1600. The high horsepower of this Rolls Royce engine was primarily achieved by an enormous supercharger which delivered air to the carburetor at about 11 or 12 lb. pressure, thus giving the equivalent of flight at a negative altitude below sea level of about 16,000 ft. The engine was geared 2 to 1 by gear gearing, which is a departure for Rolls Royce. It is a new engine designed and built in only nine months and is essentially a larger version of the 600 hp. Condor and designed as a Condor replacement for the British Government. This engine will undoubtedly be used in high performance fighters and two seaters, as well as in bombing planes.

Another feature of the Supermarine 56 over the machines of previous years, was the inside cooling wing section. Instead of placing the skin radiator on top of the wing the radiator shell itself was made strong enough to serve not only as the wing cover, but also to take up all the tension and drag strains. Out at the tips of the wings three veins of about 4 sq. ft. area, each, drew air into the wing which was sucked out at the trailing edge near the body and set up a very definite circulation which added to the cooling. Obviously in these high powered racing planes with small wings there is very little room

Waghorn, 1st Supermarine 5B

| | |
|---------------|-------------|
| First lap | 1:10 m.p.h. |
| Second lap | 1:10 m.p.h. |
| Third lap | 1:10 m.p.h. |
| Fourth lap | 1:10 m.p.h. |
| Fifth lap | 1:10 m.p.h. |
| Sixth lap | 1:10 m.p.h. |
| Seventh lap | 1:10 m.p.h. |
| Eighth lap | 1:10 m.p.h. |
| Ninth lap | 1:10 m.p.h. |
| Tenth lap | 1:10 m.p.h. |
| Average speed | 1:10 m.p.h. |

Gring, 2nd Supermarine 5B

| | |
|---------------|-------------|
| First lap | 1:10 m.p.h. |
| Second lap | 1:10 m.p.h. |
| Third lap | 1:10 m.p.h. |
| Fourth lap | 1:10 m.p.h. |
| Fifth lap | 1:10 m.p.h. |
| Sixth lap | 1:10 m.p.h. |
| Seventh lap | 1:10 m.p.h. |
| Eighth lap | 1:10 m.p.h. |
| Ninth lap | 1:10 m.p.h. |
| Tenth lap | 1:10 m.p.h. |
| Average speed | 1:10 m.p.h. |

Appelby, Supermarine 5B

| | |
|---------------|-------------|
| First lap | 1:10 m.p.h. |
| Second lap | 1:10 m.p.h. |
| Third lap | 1:10 m.p.h. |
| Fourth lap | 1:10 m.p.h. |
| Fifth lap | 1:10 m.p.h. |
| Sixth lap | 1:10 m.p.h. |
| Seventh lap | 1:10 m.p.h. |
| Eighth lap | 1:10 m.p.h. |
| Ninth lap | 1:10 m.p.h. |
| Tenth lap | 1:10 m.p.h. |
| Average speed | 1:10 m.p.h. |

Stokely was disqualified for falling in gear round end of the pylons

Dei Rado, 3rd Murex 62

| | |
|---------------|-------------|
| First lap | 1:10 m.p.h. |
| Second lap | 1:10 m.p.h. |
| Third lap | 1:10 m.p.h. |
| Fourth lap | 1:10 m.p.h. |
| Fifth lap | 1:10 m.p.h. |
| Sixth lap | 1:10 m.p.h. |
| Seventh lap | 1:10 m.p.h. |
| Eighth lap | 1:10 m.p.h. |
| Ninth lap | 1:10 m.p.h. |
| Tenth lap | 1:10 m.p.h. |
| Average speed | 1:10 m.p.h. |

Cadogan, Murex 62

| | |
|---------------|-------------|
| First lap | 1:10 m.p.h. |
| Second lap | 1:10 m.p.h. |
| Third lap | 1:10 m.p.h. |
| Fourth lap | 1:10 m.p.h. |
| Fifth lap | 1:10 m.p.h. |
| Sixth lap | 1:10 m.p.h. |
| Seventh lap | 1:10 m.p.h. |
| Eighth lap | 1:10 m.p.h. |
| Ninth lap | 1:10 m.p.h. |
| Tenth lap | 1:10 m.p.h. |
| Average speed | 1:10 m.p.h. |

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

Dei Rado, 3rd Murex 62

left for cooling surfaces and even the pistons were used on most planes.

The Gloster-Napier plane was a beautiful piece of work and it was the most disappointing to everyone that it could not be used to enter the Race. It looked very fast and from an airplane standpoint, was the design of the British designs. One of its notable features was that its wing was thickest at the point of support of the landing wires outboard and was tapered in section and in cord not only at the wing tip, but very noticeably at the body, undoubtedly reducing a bad parasite drag at the root of



Worstest effort (left) and the one which (right) won the Race. The one on the right is the one which won the Race.

the wing. This plane weighed about 3500 lb. loaded with a stepped-up Napier racing engine (3 banks of four cylinders) geared for a fairly high speed propeller and giving about 1100 hp. This plane in its test flights had a beautiful take off under all conditions and appeared to handle very well in the air, but on turns, due to a combination of trouble in the gas system and the location of the air intake low engine revolutions very badly. This difficulty was not overcome in time for the Gloster plane to be entered in the Race.

The Italian Macchi 52 plane with the 400 hp Fiat engine in the forward place of two years ago and the one which last year broke the world's speed record. The Macchi 52 is a very formidable looking plane, although it has previously had no testing, excepting in the flights just preceding and during the Race.

The Italian brought over two additional planes for exhibition. One, a very little Fiat racer with 1000 hp Fiat engine, which, from a standpoint of workmanship was the most beautiful piece of work at Colaba, but which did not fly at all, as one understands the landing and take off of sports were pretty high even for this time.

The other plane was the much discussed Savoia-Macchi tandem monoplane. In this plane a very beautiful stream line powered "egg" replaced the usual fuselage. As each end of it is a 1000 hp Fiat engine, conversely well cooled and in between sits the integral aviator, thus "completing the sandwich." On either side of the rear propeller are two booms from the wings which join booms from the front to hold a tail structure that was surprisingly rigid. There is no doubt this machine would fly although the pistons had very noticeable long and whether or not it is fast would largely depend upon the efficiency of the rear propeller which is being measured. It was thought to have to throw back air in a slip stream of about 600 mph.

In general the British planes of the 1912 followed

faithfully along the classical design of racing aeroplanes with twin forms which was introduced in the original Macchi 89 which won the Schneider contest at Hampton Roads in 1910. The Italians have kept close to this design. The British have modified it slightly by great improvement in the body shape and particularly by a quite different fin and rudder which on the British plane is noticeably high and entirely above the thrust line. This, it is stated, greatly causes the ability of the plane to make sharp turns and certainly from the look of the way they handled, the British planes seem to take and hold their backs very nicely.

Torque effect on the off side piston on take off was very noticeable on the geared down Supermarine but instead of offsetting the position there was merely more fuel burned in one than the other.

In all the planes in the Race the amount of "blowing" in carrying the gas from the pistons to the engine, and the water from wing radiators to headers, and also from pistons to headers, and the oil from side radiators along the body to oil tanks in the fin and then back to the engine, and when not made one day, but it seemed to work.

The great question of flutter was, of course, the subject of much longer study. The general conclusion of competent opinion, however, seems to be that rigidity is the only way to stop wing flutter and that best way to do with the controls is to make the hook-up of the control surfaces to the stick with an absolute minimum of play. Whether or not differential control movement is used does not seem to bother the pilots as much as an absolute absence of any play, and this was achieved by a perfect mechanical fit of lever controls with bell cranks and push and pull rods of perfect mechanical rigidity.

Pistons on the British planes were of dual with all seven counterweights. On the Macchi the pistons were of



Macchi 52, the world's fastest biplane of the 1912 season.

water. All pistons had very shallow steps of only 1/8 inch depth and no wet tapers. There was nothing new in this.

In general, future developments for further increase in speed will mean not only added power but the advent of variable pitch propellers and possibly increased cooling to reduce the size and weight of the radiating system. Water-cooled engines are by no means entirely replaceable by air-cooled engines, particularly in the case of really high horsepower, such as these.

The contest is a splendid proving ground for most aviation developments in the art, and should be recognized and participated in to the utmost, despite the expense as it is well worth it particularly for the winning country.

THE FIRST NATIONAL Air Traffic Conference

By JOHN T. NEVILL

THE FIRST National Air Traffic Conference of the Aeronautical Chapter of the Chamber of Commerce of America was called by F. B. Rensselaer, president of the Chamber and Col. Paul Henderson, president of the American Air Transport Association, when it was deemed time that the operators get together and take stock of one another, each with a common view toward the betterment of their respective stock in trade. Their stock in trade being airplane travel, their common aim at the Kansas City meeting was to ascertain ways and means to improve it, polish it up, and sell it in wholesale quantities to the American public as an economic necessity.

There seems little doubt, to this writer at least, but that the Kansas City meeting, which was held Sept. 26, 27 and 28, will prove of inestimable value to the operators participating in it. A number of able papers, covering almost every phase of air traffic business, were presented and the discussions of those papers were so intelligent and so sound as they were educational. Despite some rather startling and, in some respects, bitter verbal attacks and advocated during certain parts of the proceedings, and despite the somewhat keen competition between some of the operators attending the Conference, the whole thing, almost unanimously, harmonious, harmonious and concerted effort, incidentally, seems to be one of the most fascinating characteristics of the aviation industry, and that characteristic is an industrial asset.

Having being a definite asset that the Conference was a moderate asking for government regulatory power over air traffic rates. Or secure a delegate or two advocating concentration on the development of air express, as being far more important and incentive than other passengers or mail. The latter claim, perhaps, is true but consider that falling upon the ears of one whose lines carry nothing but passengers. Yet, those things and others like those were discussed such and such, and with no scoring after-effects. In one other incident, this probably would not have been so.

The First National Air Traffic Conference was an event, it being deemed one of its purposes to do so. However, many good thoughts, suggestions and recommendations were produced, to be directed toward possible beneficial strengthening through the proper channels.

The plot of everything taking place at the Conference was contained in 11 topics handed in by 10 committees appointed by the Aeronautical Chapter early in the Conference, and read and discussed on the final day. These committees, each containing eight or more persons

qualified as being versed in the respective problems to be discussed, were as follows:

1. Airports—C. C. Cole, superintendent of operations, Western Air Express, chairman.
2. Accounting—Duncan R. Howard, assistant treasurer, Universal Aviation Corp., chairman.
3. Communications—Herbert Hoover, Jr., radio expert, Western Air Express, chairman.
4. Publicity and Advertising—R. A. Bailey, general traffic manager, Universal Airlines, chairman.
5. Facilities for Handling Passengers—W. A. Patterson, general traffic manager, The Boeing System, chairman.
6. Ticket Sales and Subscriptions—Miss Amelia Earhart, assistant general ticket manager, T. A. T. Inc., chairman.
7. Standard Baggage Weights—Kling Young, general passenger agent, Southwest Air Express, chairman.
8. Insurance—H. J. McNally, assistant general traffic manager, Universal Airlines, chairman.
9. Dispatching Air Mail and Express Traffic—J. W. Sabin, general passenger agent, Universal Airlines, chairman.
10. Handling Air Mail and Express—Clifford Hall, president, Clifford Hall, Inc., chairman.

The Conference was formally opened Monday noon Sept. 16, by a luncheon presided over by Luther K. Bell, assistant general manager of the Aeronautical Chapter, the general speaker being Col. Halsey Dunscomb, executive vice-president of Universal Aviation Corporation. An address of welcome was tendered during the luncheon by Minor Albert E. Beach, of Kansas City. Charles L. Lawrence, vice president of the Chapter, who was to have delivered the response, was unable to appear.

Colonel Dunscomb, for the most part, confined his remarks to a review of air transport in America. From present days to the present time. However, following a statistical review of today's air transport status, he launched into his subject, a declaration of the meeting's purpose, by declaring that the Aeronautical Chapter and the American Air Transport Association had called the Conference in order that the operators attain certain needs "which may be considered as public confidence, increased patronage, constantly improving service and better financial operation."

Immediately following the luncheon's adjournment the delegates re-assembled in more spacious quarters in hotels

the first day's afternoon session, a meeting called to cover the general problem in air traffic. In the absence of Col. L. H. Britton, vice-president and general manager of Northwest Airways, Inc., who was to have been Chairman of the session, Maj. Gen. John P. O'Rourke, president, Colonial Airways, Inc., presided. Although the discussion relative to the papers read during the afternoon session proved disappointing from the standpoint of quantity, what discussion there was was extremely interesting. It is regrettable that the session's



Left: Capt.
John P. O'Rourke,
President of
Colonial Airways, Inc.

Right: Col. Harry H. Britton,
Chief of Airline of the
Department of Commerce

three excellent papers—"Air Transportation Its Importance, Development and Present Status," by Col. H. H. Britton; "Traffic—the Foundation of Air Transport," by C. W. H. Smith; and "The Problem: Then Confront Us and How the Conference Proposes to Study Them," by T. B. Clement—did not create much with discussion from among those present. It seemed that virtually all of the remarks made from the floor came from persons other than the air transport operators themselves, i.e., from the so-called accessories and co-operating agencies, rather than from the operators to whom the Conference held the most vital appeal.

THE PAPER read by Colonel Britton, chief of the Division of Airports and Aeronautics Information, United States Department of Commerce, was, as its title might promise, rife with figures as to the present condition and performance of air transport. "In the United States today," he declared, "there are some 40 air transport companies flying 75,000 miles per day, and carrying, in addition to thousands of pounds of express and large numbers of passengers, over 6,000,000 lb. of air mail each year. Moreover, of this daily scheduled operation, about 25,000 miles are being flown during the hours of the night. In spite of this impressive figure, we have not yet scratched the surface of future possibilities.

Calculated (Briton outlined) the work of the Federal government in attempting to bring about four essential elements of physically successful air transport, the elements being (1) satisfactory craft, (2) competent pilots, (3) suitable

equipment, and (4) conformity with standard air traffic rules.

Speaking of air mail, express and passenger service, Colonel Britton said our monthly air mail payloads had increased from 140,000 in January, 1928, to 260,000 in August, 1929. "During the first six months of 1929 air mail operations flew 3,664,373 miles on domestic routes and an additional 715,400 miles on foreign routes,—making a total of 4,379,773 miles. During this period the total weight of air mail dispatched amounted to 3,468,552 pounds." Some idea of the possibilities in the development of air mail, according to Colonel Britton, can be seen in the \$975,042,635.66 postal revenue collected by the United States Government last year.

IN THE NEXT PAPER, C. W. H. Smith, general traffic manager of Western Air Express, stated that he believed that "the development of air express is the big thing for air transport operators in the future."

"I am convinced," he said in part, "that it will prove of more value to major air transport concerns than will the handling of passengers. It will provide an impetus to us, and probably more so, than will our air mail contracts. But there is one overall requirement—larger and better airplanes, and we all know that such airplanes are being built."

"Let me illustrate this point by citing the 20-passenger, four-engine airplane now being constructed by the Fokker Aircraft Corporation. As a passenger carrier that plane can carry 32 persons for daylight flying, or 16 when the berths are made up for night flying. But suppose we turn that airplane into an express carrier. It will have a useful payload of between three and four tons. At several times we could fill that airplane with express and make more out of the trip than if we carried a full load of passengers. By normal rates I mean rates equalizing those charged by surface transportation mediums."

In other words, I believe that within the next two years aircraft development will have so advanced that we will be able to carry express at the same rates as now charged by railroads, and we will be able to make delivery three or four times as rapidly.

Early in his paper Mr. Smith stated that commercial aviation in the United States relies upon three elements for its support. First, air mail; second, passengers; third, express. Aside from his most interesting views as to the future importance of air express, the remainder of his paper was a discussion of mail and passenger dispatch.

The paper read by Mr. Clement, general traffic manager, Transcontinental Air Transport, Inc., was the last of the afternoon session. Because the subject matter of his paper contained the very essence of the First National Air Traffic Conference, in so far as passenger traffic is concerned, and because he was a member of the committee drafting the program, we make the liberty of quoting him at considerable length. The speaker explained that his paper related principally to the passenger because he believed "the program indicated that phase of air traffic was the major problem before the Conference."

"The answer to the question, 'How can we immediately increase air passenger traffic?' Mr. Clement asserted, "must be found in an analysis of the points of air resistance and obstacles confronting us. I have seen it to divide the subjects to be discussed at this meeting into three classes."

First: Those matters upon which a perfectly frank discussion is always mutually helpful, but upon which

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this Conference can take no definite action, except in so far as they are able to develop the combined views of those interested in the business for the benefit of the whole.

Second: Those matters upon which it would be well at some time to have some uniformity of policy among the carriers, but matters which seem to be impossible of solution at this time due to our paucity of experience.

Third: Those matters which should be immediately removed from the realm of competition and which it is to the interest of all of us to solve at this time.

There are four general problems which, in our opinion, belong in the group of subjects upon which a general discussion should prove beneficial. The first two in this group is the problem, how can the operations and of our business contribute to the immediate growth of traffic? It has been only recently that our operating friends have begun to realize that we can do much to help traffic, and that there are many suggestions in regard to operations that those experienced in traffic can walk to work in a greater volume of business. We all of the operating department are vitally interested in airports, in communications, in service to passengers, both adult and aged, and so on through many of those problems which, heretofore, have been considered purely for those of the operating department. If this Conference result in setting aside but a closer relationship between the two



T. B. Clement, general traffic
manager TAT

Harry H. Britton,
Chief of Airline
Department of Commerce

mail side of our business and the selling organization, it will be productive of great good. We even believe that our friends of the accounting department may be of great assistance to us who are given the responsibility of selling.

"In this general class, also, we have included the interesting problem of publicity and advertising. I have placed this problem in this group because I know of no subject under the sun on which there are more absolutely diverse opinions.

The last and most important—methods of selling air transportation and an exchange of traffic building ideas—has been included in this group for the reason that it will never be removed from the realm of competition, nor should it be. But it will always be a matter upon which

we all can afford to get together for an exchange of ideas. We shall be interested to hear, developed under this heading, the various opinions of our associations on such interesting matters as air-mail problems, so-called ticket offices, considered time tables, aviation and distribution of printed matter, the value of various so-called "stunt" airlines of selling the service, whether this particular type of service needs a new type of selling, or whether we should apply the same psychology that governs the sale of other forms of transportation."

THE FIRST ITEM in the second classification—that of matters upon which it would be well to have a uniform policy, but upon which additional experience is required before a uniform policy is possible—was described by Mr. Clement as "that very touchy subject of rates."

Concerning this matter the speaker said: "We who sell air transportation today, I think, realize that one of our chief points of sales resistance which must be overcome is the cost of air travel. Two different schools of thought have developed on this problem, one that low rates, and by that I mean rates that cannot possibly guarantee a profit, will have their effect in increasing volume, thus, by spreading the gospel of aviation, will have about probable operation more quickly than the idea is that the cost of air travel is the main barrier to its growth. From the start at least, should offer some close relationship with cost. There is another problem under this heading which many of us hesitate to approach, but which, sooner or later, will have to face and that is whether it is to our advantage to operate as a private or a common carrier."

Another matter in this classification, Mr. Clement stated, should be the legal aspects involved in aviation, particularly, that very serious matter of liability, on which there has been very little law developed by our courts up to the present time. Still another problem, he said, is the matter of insurance, both from the angle of the passenger and for the protection of the carrier, and, lastly, "the rather difficult problem of interchange of through air traffic."

"Now we come to class three, in which group, as I have said before, I have seen fit to include problems which are not only common but vex us all, and which, if left in the realm of competition and without uniformity of action, will do more of us good and all of us harm in the end. Furthermore, they are all problems which should be immediately solved."

"First in this group are the rules and regulations which the traffic departments of all airlines have drawn up and published in their transportation tariffs under the heading 'Inter-carrier Conditions.' Certain these so-called

general conditions should be the same for all lines. This would not only result in eliminating confusion in the minds of passengers, but would save much dissatisfaction, and become one of the first steps toward making air passenger travel a normal and reliable thing to buy and own. We all say that we are striving for the day when air transportation will be accepted as a definite part of the general travel system of the world. Certainly that can never happen should each and every one of us have different and diverse petty rules and regulations. Speaking of them should be no difference as to the provisions for the handling of baggage, lost and damaged, and amount carried free. We should all have the same regulations as to when and how refunds on cancelled tickets may be made. Certainly we should all have the

some rule in regard to fares for children. In fact, we could take up the tariff of any one of us here today, go through it paragraph by paragraph, and develop a uniform set of general conditions to the injury of none and the advantage of all.

I also believe the time has arrived when we should all get together and develop strict and uniform regulations for the granting of free transportation. There was a time when some of us felt that the carrying of free passengers was one of our best selling mediums. I believe now, however, there is a possibility of much abuse of this privilege. It is not wise to say what the policy of the lines should be on that subject, but I do declare we should decrease a food policy. Another matter that we should consider and take action upon is the so-called "moral question." Unless we develop regulations to which we will all adhere on the handling of promissory party business, the day is not far off when endorsement will be offered by all of us. We should have some definite regulations as to how many people are necessary in order that the business be considered a party, and what discount should be made.

Mr. Chamberlain took up the problem of commissions to agents and the problem of the agency itself. He urged the operators to set a commission rate "to which we will all adhere—rate applicable to various types of business, satisfactory to the agent and to the line. Relative to the agents, the speaker said: "If we could agree on some standard form of appointment, some standard system of remuneration, if we could get together on the agents and classes of agents that we wish to use, if we could have some plan by which they would have general supervision over the performance of agents all of us will be relieved of much work that will profit as little, and we will have considerable more time to spend in the general advancement of the industry and the bettering of air traffic."

He far the most important part of Tuesday's program was the meetings of the 10 committees. The membership of which had been announced by General O'Brien at the bus action on Monday. The meetings were held in the afternoon commencing with a general session of approximately 50 members of committee, the latter of which was convened for the definite purpose of determining their work in the promotion of air transport. The morning program was comprised of a general session of the operators, at which a paper entitled "Rate Making and Competition Costs" by John H. Halbertson, president of the Southwestern Air Line Express, was read by A. F. Wain, of the Halbertson organization.

Mr. Halbertson's paper definitely attracted governmental regulation of air line costs, suggesting the formation of a body similar to the Interstate Commerce Commission, which would have regulatory powers over all phases of commercial air transport. The paper charged that present air passenger rates discriminate against individual passengers, and that such contracts discriminate between facilities. It cited the heavy resistance from such regulatory powers issued in the past, and urged the Commission to be established as either favoring or discriminating against a group.

When Chairman O'Brien asked for discussion on the Halbertson paper, William P. MacGregor, retiring Assistant Secretary of the Commission, was the person who appeared to be the expression of opinion of those present (except for Mr. Wain) who were very

forcefully and emphatically disapproved the solicitation of aid such "help" from the government. Mr. MacGregor pointed out that "it may be true that government regulation of railroad rates had eliminated some of the hoarding and throat-cutting among the railroads, but that it must be remembered that railroad rates were not regulated until the roads were about 75 years old." Such powers exercised over the air transport industry at this time, he said, would be "putting chains on the industry and seriously hampering its progress."

The second and concluding part of the morning program consisted of brief talks on effective traffic getting plans by 12 or more executives of as many air transport companies. These talks concerned largely the various selling methods now more or less generally employed by the air line operators. Especially interesting, however, was the talk of Ralph Westing, business manager, Pacific Aviation, Inc., who urged elimination of the word "safety" in selling air travel to the public, and the paper of Sumner Sewell, of Canadian Colonial Airways, which dealt with his company's newly inaugurated connection ticket system.

"We all know," declared Mr. Westing, "that air transport is not safe as compared with other modes of travel, and is continuously emphasizing that it is safe has the psychological effect of creating suspicion in the minds of those who approach it."

This belief was not shared by A. W. Peruch, of Pan-American Airways, who declared that safety was the first real sales point, in his opinion, that traffic must be offered over. Speed, scenery, fascination, comfort, or any other advantage air travel has to offer, he said, are worthless unless a passenger feels his security in the air.

"Fifth-trip connection tickets are proving themselves an economic asset on our line," Mr. Sewell said. "When our first 50-trip ticket was introduced, its popularity was immediately pointed out. We were told that it would tend to make our regular rate, that it would get out of control, and that in time it would result in the customer crowding out our full rate passengers."

"Instead, we have found that our connection ticket holders are our best customers and have definitely sold many of their friends on a one-trip trip. Approximately 11 per cent of our gross revenue now comes from our ticket holders between New York and Boston. We have 570 such trips now pending on our books. On 99 per cent of these tickets, customers are riding in the theoretical 30 per cent inflated space on board the plane. So you can see the economic soundness of the connection ticket."

The committee policy of Colonial, the speaker said, has been in operation for 3 months and is operating against a 25 hour air route rate. The plane trip is approximately 2 hours long, and its fare is approximately three times the rail fare.

THE MEETING of the chambers of commerce in the early afternoon was presided over by Lutz E. Holand, executive manager, Kansas City Chamber of Commerce, and was addressed by W. G. Herman, Senior Airways, Inc.; B. F. Myers, assistant superintendent of air mail service, Chicago; Allan J. Farlow, Curtiss-Wright Corp.; R. W. Ireland, National Air Transport; and Harvey J. Caspary, Detroit Board of Commerce.

Both the morning and afternoon sessions on Wednesday, the final day of the convention, were taken up entirely by the reading of the committee reports and the discussion on them. Mr. Smith, of Western Air Ex-



Sumner Sewell, general manager of the Colonial line.



Robert Henson, Jr., radio engineer, Western Air Express, Inc.



Lutz E. Holand, executive manager, Kansas City Chamber of Commerce.

press, presided over the forenoon meeting, the afternoon session being under the chairmanship of Stanley E. Korman, vice-president and general manager of Stout Air Services, Inc.

THESE, for obvious reasons, the committee reports cannot be detailed here, it might be interesting to someone them in their scheduled order. The airport committee recommended the speeding of general aviation at all landing fields to elements back of time passed in the air, and agreed that cities hoping to retain and increase their air transport business must provide ports closer to their respective business centers. "This problem," the report stated, "may solve itself in some of our larger cities by the establishment of terminals at or near the heart of the city, with hangars, shops and servicing facilities at outlying fields." Although pointing out that the so-called "run-way" fields are the most to control, the committee recommended the use of taxi-ways to eliminate time lost, as well as having experienced, when one plane is taxiing over a run-way which another plane preparing to land is waiting to land upon.

It was also recommended that the uniform code of airport rules being drawn up by the Department of Commerce, be adopted nationally as soon as possible.

The committee on accounting, reported that it "felt much thought should be given to the standardizing of inter-line accounting," and recommended a uniformity of practice among transport operators to simplify accounting methods. "To have the necessity of establishing credit agreements 'red in the same time, saving the requisite of a security of the so-called hotel power and agents of the nature," the committee urged that credit be limited to a weekly basis.

In reporting on communications that committee stated as tapes upon the perfection of two-way radio communication between planes and the ground and pointed out that the Federal Radio Commission has decided to license any airport to use a low power transmitter with a range of 30 to 200 miles on a wave length of 1,600 meters. "The transmitter field, therefore, needs only to have a long wave receiver to cover everything he needs to know. Such places will be permitted to send on a

wave length of 58 meters, thereby making it possible for them to establish two-way contact when within range of an airport."

The committee deplored the transportation that the public will be permitted to use aerial radio apparatus for making personal telephone calls, stressing that "such conversations would seriously prejudice the use of the apparatus for its primary purpose, and should be permitted only at times of the gravest emergency."

Continguation of the "open-door" policy in giving out information about accidents was recommended by the committee on publicity and advertising. "It is the feeling of this committee," the report read, "that in cases of such accidents, the operators should deal openly and frankly with the press, telling the truth and the whole truth." The committee also commended the press of the country for its efforts to be fair and impartial in reporting aviation accidents, and stated that it felt the Aeronautical Chamber of Commerce has taken "the most important step in urging the newspapers and press associations to specify in reports of accidents whether the plane and the pilot were licensed or unlicensed."

Elimination of publicity based upon the "details of flying" was urged, and, the committee reported, "it is not good policy, from the standpoint of publicity, to have passenger pilots perform stunts as a means of attracting attention to the airline with which the pilot is connected."

THE COMMITTEE appointed to study the handling of passengers moved to the following recommendations which were submitted to the report: One food route from pickup point to airport. All baggage weighed and checked at destination office when possible. Protection of baggage from damage while in transit. Encouragement of airport operators to provide adequate transportation facilities between ports and downtown, as well as outside city facilities at the airport. Some adherence to schedule. All equipment inspected, cleaned and disinfected after every flight. Cold fresh drinking water, spray, instruments, and literature be kept in the cabin, as well as writing material and postage stamps. All flying and ground personnel who come in contact with passengers be instructed. All employees be in-

seemed to release him. Incarcerated persons kept off planes. Passes properly vouchsafed in summer and winter, with sufficient bearing in winter. Photos attached to fly at altitudes conducive to the greatest comfort to passengers. Manufacturers encouraged to design more comfortable chairs and work toward elimination of noise. Itinerary, providing they must be in sight of passengers, be kept as neat as possible.

A consultation to agents, not exceeding 5 per cent was recommended by the select sides and consultation committee, although that committee had no recommendation to make relative to an over-riding commission to general agents. The committee also recommended that "all companies be urged to circulate other companies advising them as to changes in operations, schedules or tariffs" and that "some agency be established for periodical publication and distribution of information regarding the schedules and tariffs of all lines."

All lines should limit their baggage carried free to 50 lb. and above that weight, up to 50 lb., an excess rate of one-half of one per cent of the passenger fare should be charged; it was reported by the committee on baggage weights. For any baggage weighing above 50 lb., special arrangements should be made with the operating company, the committee believed. The committee asked the Conference to urge all operators to insist upon collection of excess rates. Failing to do so, it was said, would embarrass other companies.

The insurance committee of the Conference recommended that the area insurance committee of the Aeronautical Chamber secure from various insurance organizations complete information regarding restrictions or limitations as to time or to coverage in relation to the use of air travel. "Since a percentage of the general public is deterred from using air travel because of lack of knowledge concerning the effect upon their life insurance," the report stated, "this committee recommends that the main insurance committee prepare a memorandum on this subject and furnish same to member transport companies that they, in turn, might correct any misunderstanding on the part of the general public."

No attempt should be made to induce the use of air mail, except in points where there is a distinct saving of time, it was reported by the committee on development of time. The committee's paper, one of considerable length, but of exceeding interest, went into detail as to what it termed the three essential factors, "leading toward the successful use of air mail. First, making the service easy to use. Second, insuring the public of the service and the proper method of using it. And third, delivery of satisfactory service." A second paper submitted by the same committee stated that the committee "felt that the subject of air express was the most important study of the entire Conference," and urged its development to the greatest possible degree.

THE COMMITTEE on the handling of air mail and express agreed further experimentation with, and development of, a pack-up device that would eliminate the necessity of mail planes landing on small airports. "In the final analysis," it was said, "time saved in the loading factor by the success or failure of transportation of cargo by air." The committee also advocated the proper setting of rates both on the ground and in the air in one measure of improving the service.

"In an endeavor to enable many cities to dispatch their mail direct to the point of destination," the report pointed

out, "avoiding the unnecessary delay occasioned by 'working' it enroute, the Postoffice Department, by Oct. 1, this year, will place in use 3,000 small mail postboxes having a capacity of 5 lb. each."

While the discussion from the floor on these reports was disappointing from a standpoint of volume, what discussion there was was well worth listening to. One delegate, for instance, took exception to a recommendation of the committee on the handling of passengers, by doubling the number of placard instruments, particularly altimeters and air-speed indicators, in the cabin. The air-speed indicator, he argued, so often misrepresented the actual speed of the plane (reading much lower than the true advertised speed) that its presence in the cabin created in the mind of an observant passenger the suspicion that he had been deceived. "The altimeter, dropping for a reason not understood by the layman, was likely to cause some passengers to believe the plane is sinking despite an apparent effort by the pilot to maintain a uniform height."

ANOTHER INTERESTING QUESTION discussed was the policy of smoking aboard passenger transports. Opinion on that score was about evenly divided, each speaker giving his reasons, which were too obvious to mention here. Still another discussion related to carrying of intoxicated passengers. An interesting angle was brought up during this period when one of the delegates, whose line operates to and from one of our neighbor countries, France, or, in fact, as you please, for its liquor, stated that if his company refused to carry all persons who were, in some degree, intoxicated, they might as well go out of business.

"One reason some of our passengers ride our airline," he explained "is that they are not capable of driving their automobiles."

Seriously, though, the question proved one well worth debating. Another operator and his company who advise from its legal department, had adopted a policy of putting bouncers and troublemakers "outside" of their planes. "Some time ago," he stated, "I issued an order instructing all of our pilots to land at the closest airport in an event of this kind, and eject the troublemaker from the craft."

It was pointed out during this exchange of ideas that the Department of Commerce regulations forbade pilots to carry such passengers.

Another problem akin to this one that was aired, would that have in certain sections of the United States already have in effect a theoretical "Jim Crow law of the air." Due to the total lack of experience on the part of a major portion of these operators present at the time the question as to the carrying of negroes, whether as passengers or as crew, was barred entirely, was short-lived on the floor. This lack of such experience, in the writer's humble opinion, is probably due to two factors—one being the relatively high cost of air travel, and the other being an apparent anxiety among our short-statured brethren to "fly with at least one leg on the ground."

The comparatively high cost of flying, let us hope at least, will not always be so high, and when that time arrives it may be that the negro race, as a class, will have become air-minded enough not to become a "Jim Crow" problem, after all. It is misanthropic enough, in this connection, to assume that if, and when negroes do take the air the problem will be a sectional one, such as it is in other modes of transportation today. At any rate, it's food for thought.

THE BELLANCA "Tandem"



ONE of the most original aircraft designs developed in several years is the recently completed Bellanca Tandem, which is intended to be used in a proposed transoceanic flight sponsored by the Chicago Daily News. This airplane is now being test flown at the field adjacent to the plant of the Bellanca Aircraft Corporation, New Castle, Del. It is the most recent evolution of Giuseppe M. Bellanca, president and chief engineer of the company.

Because of its high degree of originality, it is difficult to compare the Tandem with existing types. However there is an element of resemblance to the Bellanca Model

K plane—"Rosa", which was built more than a year ago and has been described in detail in the June 11, 1938 issue of AVIATION. This similarity is found in the wing housing which represents in general an abstract form of the lifting struts developed by Mr. Bellanca. The attempt to derive lift from all major areas of the airplane is distinctly noticeable to even a greater extent than in other Bellanca designs.

Probably the most radical departure from conventional practice in the Tandem engine installation is the use where two Pratt & Whitney Wasp engines are installed back-to-back. The forward propeller is coupled to the forward engine in the usual manner while the rear propeller, which is of the pusher type, is driven by a shaft passing through the fuselage or cabin structure. This structure, the length of which constitutes slightly more than one-third of the overall length of the airplane, is spread out to a sharp vertical edge at the rear. Tail surfaces are attached by means of outriggers to the wings. For this reason the cabin structure does not conform strictly with the definition of the word fuselage as outlined in N.A.C.A. Technical Report, "Nomenclature for Aerocrafts."

The purpose of this design is to provide a multi-engine airplane retaining the efficiency and maneuverability of a single engine craft. By mounting the engines in tandem, the frontal area is virtually the same as if but one engine were used, while the load carrying capacity is considerably increased. This arrangement has the additional advantage that if one engine fails, the dead engine does not offer additional resistance, nor does it have the same effect as a wing engine failure on the control of the aircraft.

The Bellanca Tandem has an overall span of 83 ft. 2 in., an overall length of 44 ft. 8 in., and an overall height of 12 ft. 9 in. The chord of the upper wing is 9 ft. 6 in. The fuselage length is 25 ft. and the height 9 ft. while the span of the horizontal tail plane is



Giuseppe M. Bellanca, Whitney & Short and G. H. Macpherson standing near the plane.

30 ft. The span of the lower wing panel is 9 ft. A wing area of 932 sq ft is obtained. The weight empty of the plane is 7,000 lb., and it is expected that when fully loaded, the gross weight will be in the neighborhood of 10,000 to 21,000 lb.

In addition to Mr. G. M. Bellanca, credit for the work is partly due to the efforts of Shirley J. Short, staff pilot of the Chicago Daily News, and Frank Bellanca and Nicholas V. Babushoff, construction engineers for the company.

Design details are the result of an idea conceived by Mr. Bellanca several years ago, but actual work was not started until approximately eighteen months ago. It was necessary to resort to basic principles in many instances in the engineering work because of the originality of the design. After several months of investigation, and, finally, detailed work on the design was started and actual construction began a short time later.

The engine mount, being designed for a definite purpose, is somewhat different in internal arrangement than later airplanes of this type that are planned. Mr. Short has co-operated with the designers in laying out the general arrangement of the plane. Inasmuch as the aircraft is to be used in an endurance flight, much of the interior space is occupied by gasoline tanks. A double deck passenger plane is planned, using the same design. Two oil tanks, each having a capacity of 60 gal., are placed at the forward end of the fuselage directly behind the engine and are fitted with an adjustable ventilation system to regulate the temperature of the engines. A fire wall separates these tanks from a 1,500 gal. gasoline

tank in the fuselage. This tank is of heavy aluminum sheets welded, with bulkheads to prevent gasoline from swirling. The tank is divided vertically into two parts, each feeding a different engine, with provision that the gasoline on either side may be pumped into the other side or that the sides may be dumped independently.

Provision also has been made to close the tanks easily to provide buoyancy in the event of a forced landing on the water. The 1,800 gal. gasoline tank extends backward to the pilot's instrument board and occupies the complete cross section of the fuselage. An aperture has been made through its center to accommodate the propeller drive shaft. Pilot and co-pilot are located behind the main gasoline tank and above the drive shaft level in the present installation. Below them is an auxiliary tank of 250 gal. capacity. Two wing tanks, also of large capacity, bringing the total to more than 1,800 gal., are installed.

The engines are mounted back to back as closely as possible and inclined in cowlings of cylindrical shape which follow the nose of the airplane. The rear engine drive shaft has a diameter of approximately four inches and passes through the fuselage to a point at the rear where a three blade steel propeller is mounted.

The drive shaft is mounted in self-aligning bearings which are lubricated by separate feeds in a Zerk System. The drive shaft is housed in a duralumin casing and, being located along the center line of the fuselage, would not interfere with a double deck interior arrangement. The installation is the result of a long series of tests in which various forms of driving mechanism were tried and the present type finally adopted. The engine mount is a cast-iron with a reinforced type of mounting ring at the forward end to support the rear engine. This mounting ring is braced in the fuselage by longitudinal members of heavy gauge steel tube of large diameter. The cowlings for the rear engine are also attached to these tubes. The rods are employed in the upper portion of the engine mount structure to in-



A view up of the drive shaft level showing the ground construction.



Side view of the Bellanca Tanager. Note the tail surface outriggers and interior and engine propellers.

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The Tanager in flight over the Delaware. (Although Corporation photo) at New Castle, Del.

crease rigidity. The entire engine mount is readily detachable from the fuselage for repairs and substitution of engines.

The cylindrical cowlings which enclose the engine except for openings in the front and rear end, is built in four sections. It is possible to remove the lower section completely or to swing either of the side sections on hinges located at their lower edges. This swelling is of single construction and, in this respect, is unlike that recently developed by the National Advisory Committee for Aeronautics which has both outer and inner portions, the inner cowlings being intended as a deflector and the combination of inner and outer cowlings being similar in section to that of an air foil. Deflectors, somewhat similar to those used in N.A.C.A. cowlings, designs are provided for the individual cylinder of both the front and rear engines. The opening at the rear of a constant width and is not circular as in the case of the N.A.C.A. cowlings. It is probable that some modification will be made in the cowlings following preliminary test flights. The fuselage structure is streamlined and upper and lower surfaces have the characteristic curvature of all Bellanca fuselages. It is so shaped that a section through it at practically any point approaches a streamline. The fuselage structure is of six long-run construction and is built up of welded chrome molybdenum steel tubes. A considerable number of cross bulkheads brace it laterally. These bulkheads have been located and installed in such a position that they do not complicate the tank installation or encumber the pilot's cockpit. The structure is covered with fabric.

The pilot's fuselage compartment is situated in the upper half of the structure which has an overall height of ten feet, being much higher than is wide. Entrance to the pilot's compartment is gained by means of a door high up in the structure on the right hand side. This door is reached by two steps built into the side of the structure. Dual control is provided by a single wheel which is hinged to the roof of the cabin in such a fashion that it can be swung before either seat. Rudder pedals are of the usual type with brake levers hinged up on the left hand end of pedals, the intention being that the

plane be flown from the left side. Engine controls are located between the pilot's seat and just above the main housing.

Access controls are used for the engine because of the remoteness of the power plant from the cockpit. In the present model the rear engine is about 12 ft. from the pilot's instrument board.

Cables are used to actuate the controls and pass over ball bearing pulleys to duralumin horns of a special type. Elevator and rudder cables run through the upper outriggers from the upper wing through which they pass from the control cockpit. As the plane is intended to be flown from the left seat, fuel system controls are placed on that side of the cabin, while dump valve levers are located on each side of the instrument board.

A specially designed instrument board having a layout devised by Mr. Short, is mounted vertically in the central compartment. The instrument equipment was built especially for the installation by the Pioneer Instrument Company. It is complete and includes practically all devices required for blind flying. Two crash indicator compass indicators are mounted in parallel to the top of the board in order to preclude possibility of failure. The general position of the instruments is such that under normal conditions, indicators on all instruments will point toward the center of the board. By this means the eye is able to detect any departure from the ideal conditions.

In the lower portion of the fuselage, at the extreme rear, is the compartment intended for the radio operator. This compartment is entered through a door in the left side of the fuselage and, as the flooring through the center is not continued in this compartment, it is possible for the occupant to stand erect or to sit with his head against a specially provided headrest. It is also possible for this occupant to be down on the lower tank in a space between the tank top and the floor of the pilot's compartment. The right hand seat in the pilot's compartment is furnished with an adjustable back which may be dropped to a horizontal position to provide a space for the co-pilot to rest. A window in the upper surface of the fuselage on the right hand side provides a possibility for the rear

gator to make observations during the proposed flight.

Although somewhat modified, the wing bracing bears a strong resemblance to that of the "Rena," as previously mentioned. The bracing is of the two bay type with the inner bay somewhat similar to a conventional mono plane with square dihedral in the lower wing setting and positive dihedral in that of the upper wing. The outer bay could be considered as a broad monoplane having a wing formed with the front and rear ribs solidly strung as its spars. In the lower this wing, which is called the auxiliary wing, is of constant chord and thickness and in this respect the modern is unlike the Roma. The outer portion of the upper panel is of conventional construction and the usual Balsa wood spar is employed. Balsa wood spars, wood ribs and fabric covering finished in the usual manner are used. The wing is exceptionally deep, allowing a deep drag strut and tending to produce a very rapid wing. Ailerons extend through the entire span of the outer, upper panels. Construction of the same type is used in the auxiliary

bay of the wing and the wheels are housed partly within the wing structure and fitted into a. Both axle is mounted rigidly to the front spar of the lower wing of the inner bay. The front spar of the auxiliary wing is pinned to the outer end of the axle. No shock absorbing device is provided excepting several 44x12 tubes which are set almost 18 ft apart. Direct landing loads are carried through the "N" strut to the upper wing and by heavy tie rods attached to the fuselage. The lower wing of this inner bay is tapered both in plan form and thickness ratio in such a manner that the spars are of constant depth and section throughout their span. The upper wing of the inner bay has the same strutt section in the outer bay upper wing.

Four outriggers are used to support the mid surface and are attached to the wings at the "N" type attachment struts. These outriggers are parallel in plan view. In side view the lower outriggers are parallel to the ground while the upper is joined to the lower at a point below the stabilizer. The outriggers are of the hollow box type, the lower being filled with balsa wood and the upper streamlined with ribs similar to those of a wing with plywood cover. They are so shaped that, in flying position, a series parallel to the thrust is as efficient structural form. Two heavy diagonal cables in the plane of the lower two outriggers are used for lateral loading. Two tail struts, each fitted with an Oleo shock absorber, are attached to the rear end of the outriggers. Vertical and horizontal tail surfaces are of wood construction similar to that employed in the main wings. A single rudder is mounted at the center of the stabilizer and has an overhanging balance similar to that of the director.

The span of the horizontal tail surface is greater than that of the inner bay of the main wing producing a high aspect ratio. The area of this horizontal tail exceeds that of the average light airplane. Streamline tie rods are used to support the fin to the stabilizer.

The specifications as furnished by the manufacturer are as follows:

| | |
|--------------------|----------------------|
| Span overall | 83 ft. 2 in. |
| Length overall | 44 ft. 2 in. |
| Height overall | 12 ft. 9 in. |
| Chord upper wing | 9 ft. 6 in. |
| Chord lower wing | 17 ft. 10 in. |
| Landing gear track | 17 ft. 10 in. |
| Total wing area | 712 sq. ft. |
| Weight empty | 7,400 lb. |
| Gross weight | 18,000 to 21,000 lb. |

Performance data is not yet available as the airplane has not been sufficiently test flown for this purpose.



A portion of the upper component showing overhanging internal cables, tail struts, rubber pulleys and part of horizontal beam.

wing, which does not extend the entire distance to the point of its attachment to the upper wing. The spars of this wing, however, are attached to the upper wing, acting as struts. They are streamlined with balsa wood and covered with fabric. One of the problems encountered in the building of this plane results from the fact that the spar spacing of upper and auxiliary wings is considerably different. It is, therefore, necessary for the spars of the auxiliary wing to diverge in order to reach the upper wing attachment points. The best positions of these spars are made of oak, the best laminations being obtained by means of a special process developed by the Balsa company. The spars are continuous throughout the body and have great rigidity against bending due to lift loads. The leading gear strut is formed by the rear

LESSONS FROM THE RACES

Ideas for future years gleaned from observation at Cleveland

By EDWARD P. WARNER

THE NATIONAL AIR RACES are built upon the experience of past years. Improvement has been gradually in most of their features by repeated trial, by eliminating flaws, and by reaching a such criticism as have truly been made. They have attained to a very high quality as a display of skill of no doubt, but in order that progress may continue it continues to be necessary that each year's experience be carefully studied. If there be points in such an analysis that are critical and if errors be pointed out, they carry no suggestion of rebuke. Perfection is so huge an undertaking is unattainable.

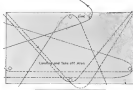
Broadly speaking, the organization of the Races divides into four parts: Relations with the public, relations with the press, relations with the airplane pilot, and the technical management of the races themselves.

Upon the score of public relations this year's management was, so far as this observer could detect, absolutely unapproachable. Upon each end of criticism, whether it be the gold prize for the great of honor or the humblest obtained at the gate, appeared the slogan "Let courtesy be shown." The tolerant, the tolerant, the tolerant, and all others who came in contact with the audience had been schooled to accept that phrase not merely as an expression of good will, but as a definite regulation laid upon themselves. There was a conscientious effort to keep everybody happy, and it attained conspicuous success.

Manager Cliff Henderson, to whom major credit is of course due for the detailed plans and their success, set out to make the Races an outstanding social event in Cleveland, and to surround the holding of a box with something of the prestige that attaches to a coronation dance at a horse show or an international polo match. He was ably helped by the Air Race Association and the local committees. In that, too, so far as an outsider could judge, a substantial measure of success was obtained.

Traffic Management

AS THE AIR RACES have subsided into history each year, the same difficulties experienced in getting to and from the scene of action have had a large share in determining the reactions of the average spectator. If traffic conditions are such that it takes two hours to get from the city to the airport and another two hours to get home for a late dinner, the unhappy victim will have no ready recollections of the afternoon, however successful the



Route theoretically possible race-course circuits

display of flying may be. In that particular, Cleveland set a standard by which future events may be judged. Whether the major credit is due to the Cleveland city government, including especially the Police Department, or to the Air Race Association, the answer has no side, but there was enough directing to go around. Town and buses progressed to the field with unimpeded and at times with alarming speed. Thanks to the widening of certain roads as an emergency measure immediately before the Races, and to a carefully planned system of one-way streets changing their direction in mid-afternoon, no cars were unknown except on the evening of the Graf Zeppelin's arrival, when traffic unexpectedly moved in both directions at once and got badly snarled. The general rule was that 40 cars sufficient from hotel to grandstand, and if the traffic had run as smoothly on any previous occasion it was not there to see it.

The public responded to the attention given their convenience. The crowds were undeniably large at the airport though dimly small at the Show. A highly important part of the management of any race must be to grade a scale in the financial side, and the attendance brought encouragement on that score from the first day. Although the closing up of accounts for so complex an organization necessarily takes some time, the indications were, and it was common report, that there should be a substantial credit balance. The air races have attained such popularity that if they are to continue to be run on the present lines the problem of the future will be not to collect from the underwriters for a deficit but to decide upon the proper discretion of a profit. It has

been suggested, and was based in a resolution passed at the National Aeronautics Association convention, that the N.A.A.A. should receive some substantial reimbursement for advertising and sponsoring the races and advising upon their conduct. The contest committee's work needs additional financial support if it is to be properly done, and the collection of a large sum of money for important events would be an obvious and a logical source of revenue. It has been suggested, too, that if the Army and Navy are to continue to contribute a very important part of the show their respective relief funds should be authorized liberally. The writer thinks both claims thoroughly reasonable. They should receive current consideration within another year.

The aeronautical world at large becomes conscious of great reforms only indirectly, through the quality of the reports rendered by the daily newspapers and the trade periodicals. Directly they matter little except to the press representatives themselves, but it would be unfair both to the present management and to future managements to pass them over without comment.

There was a signal endeavor to make the best possible provision for the convenience of the press. Messrs. Bruce and Hyatt and Mr. Adams, their business affairs, were hardly active in the important "behind" running course difficulties to be referred to later in connection with the technical organization of the contests, their efforts attained success. To be sure, a certain number of people who had no business in the press stand crowded in and forced working newspaper men to seek new points of vantage, but that seems to be universal experience. Seldom if ever has there been devised a system of badges and checks on admission which could be maintained for a week without breaking down and permitting extensive gate-crashing. Aside from that annoyance, both facilities and equipment were good, and they were appreciated.

Flying Conditions

At these events come under the head of showmanship and publicity work, and they are of secondary importance to people professionally interested in aeronautics. Their first concern is with the flying rules, with the conduct of the races, and with the general relations between the fliers and the management.

In an aeronautical view of flying conditions through the week, the unobjectionable restriction is of the class. No one can be criticized for that: for no one has ever

found a wholly satisfactory way of quelling the masses, but it may be put on record, by way of a year so do the utmost in the search for a solution, that the dust was appalling. It had been bad at Los Angeles in 1928. At Cleveland it seemed even worse, although recollection may be at fault on that point. When a section of mud or military machines took off together they promptly disintegrated in a deep brown cloud, which at times totally obscured the audience's view of the horse police and the machines turning at during a race. A single plane taking off laid a misty smoke screen behind it, which of course hung continuously from the point where the shipman was striking the ground until the machine was some ten or fifteen feet in the air. It is difficult to be optimistic enough to believe that even tail-wheels would have made the trouble or to see any real solution except in the use of level-surfaced runways. That does not mean in the right climate, but only under exceptionally favorable conditions would that have the strength and stability to stand the sort of abrasion that the Cleveland airport was receiving. A thorough treatment by oiling of coarse roads would be a solution, as has been shown at the Naval Station at San Diego. The only bright spot in the dust situation at Cleveland was the good judgment shown in placing the grandstand where the prevailing wind blew away from it and across the field. The audience could not see through the dust, but at least they did not have to die it. Dust is not only an annoyance to spectators, but it greatly reduces the danger of collisions. The harmful factor in reducing collisions based, however, is the rigorous enforcement of stringent traffic rules.

Flying rules for the Cleveland airport had been carefully worked out, and attempts had been made to keep all pilots informed of these requirements. Judged by performance the regulations were perfectly satisfactory, for there were no collisions. Judged by observation during the meet they were still not good enough, for there were several close escapes and apparent misunderstandings. They will need to be tightened up still more in the future. Plans taking the air will have to take off only on individual clearance, signalled from a traffic control tower. Machines coming in to land must follow a rigorously specified course, and they, too, must be subject to control by signal. No plane not participating in a competition or in some event for which the air is held entirely clear ought ever to cross or closely approach the field at less than a specified and very considerable altitude, except in a straight course for taking off or landing. Separate

noises should be used for landing and taking off. Some of these things were done at Cleveland. All of them will become the object of increasing concern in the future. It may even be necessary to close the field to all commercial operations and to all flying not directly connected with the meet.

Starting and Timing the Races

PARAMOUNTALICALLY, the weak point of National Air Races, however successful they have been to a show, has very frequently been the conduct of the races themselves. The arrangement of the course, the timing, the measurement of the technical results, and the general planning of the event have on several occasions been disappointing in the extreme. While Cleveland showed a distinct improvement in most of these particulars over a series of predecessors, and especially over the races of 1928, there was still much to be desired.

Last year the attendants took so minor a place on the menu of attractions that many of the spectators never knew that they were going on at all. Machines flew around a pole well out in the middle distance, the results were recorded upon a score-board placed high above the heads of the crowd and behind their backs, the announcing of results was sometimes completely lacking and at best it was clumsy. There was no possible way of finding out who was who and what he was flying, or what kind of progress he was making. The spectators had not come out to see races, but to gaze upon the Sea Hawks and the Skybreakers.

At Cleveland the attempt to have a score board had been given up entirely. No vital record of any event was made for the crowd. Admittedly the spectators ought to bring a hand out off their view of the field, but at best, if no other location can be found, there ought to be one at the top of the grandstand. Visitors interested in the technical details ought to have some chance of learning them without catching them on the fly from an announcement frequently uttered in competition with the roar of an engine running at full throttle.

The interesting last month was so good as the availability of the results from the powers possessed, but next year it is impossible to get prompt official reports of individual fly times there should be in the manager's box a couple of assistants, armed with stop watches and skilled in mental arithmetic, who will be able to write freely unmodified and approximate times on each machine as rapidly as it passes the gylon and so broadcast a

running story of the race up to the masses. Only in a very close event should these results be in danger of differing from the official ones.

I come at last to the necessity of comment upon the two weakest points of the Cleveland meet, the inability to get out official times with reasonable promptness and the entire lack of score-boards. A week after the first races had been held it was still impossible to get official lap times and even the official results sent out a week after the meet did not include any individual lap figures, but only the totals. In several cases results were given out incorrectly and corrections made some hours or a day later. There was a disconcerting assemblage of mistakes and uncertainties, especially after there had been some protest from contestants.

For all this difficulty there is absolutely no occasion if the officials are properly chosen for their experience and ability and, equally important, if they are given proper equipment and surroundings. Whatever the difficulties of keeping the press stand secret in the press, the judges, and timers, preserve must be absolutely accurate in the results of the races are to have any meaning.

There should be an instructor limited to a dozen officials, and neither a newspaper correspondent, nor the best friend of the designer of one of the competing machines, nor the President of the United States should be able to get inside. Given some space to work in and freedom from camera flashes at their elbows a dozen experienced timers and scorers can get the time on every machine on every lap, correct within a fifth of a second and have a complete copy, including average speeds ready for the manager and for distribution to the press within three minutes of the end of the race—and do it with no mistakes and no necessity of subsequent correction. That can be done with ordinary stop watches for timing. It has been done repeatedly at motor boat races. Nothing less than that performance can be rated as satisfactory. With a timing chronograph, such as is employed at the Indianapolis speedway and has been used at the Air Races in several past years, accuracy and speed can be still further improved.

Score-Cards

THE RESULTS from the timer's box are statistically interesting, but they are only of secondary value to spectators who know nothing about the pilots and the chances to which the races are attached. A major problem for the management of the next year's races is the devel-

ing of a system that will permit the distribution of more marks out only to a select few in the press box or among the official guests but to every individual in the stands. That was done at Detroit in 1932. So far as I know, although I have not been perfect in any record of aviation at the Fair, it has never been done since.

At Selfridge Field seven press men there were on scorecards giving a complete list of the names for each race, the make of machine and the type of engine used by each one, and with space left blank for the spectators to fill in with the speed or time on each lap for himself.

The practice of using score-cards should never have been allowed to lapse. To the spectator really interested in aeronomics their lack cuts the wide and interest of the races by more than a half. There is no adequate reason for permitting entries to race up at the last moment. Most year, and forever thereafter, the entry lists should be strictly closed at an early enough date to permit the over-night printing of score sheets for each day's racing, to be issued as supplements to the program. At Cleveland even the unimpaired lists circulated to the press at the last minute before the race were drastically inaccurate, and hardly ever were the type of plane and the type of engine both given correctly.

In actual content of the races the meet of three weeks ago included two movements of great value. First was the shortening of the course for safety of the events. It is the almost inevitable rule that the pilot making the fastest time for the first lap of an air race is also the fastest overall. To string the other out to ten or fifteen laps is wasteful both to the pilots and to the spectators. The program at Cleveland was overworked, but it would have been better to cut the length of most of the races than to eliminate any of them.

Handicap Races

THE OTHER SOCIETY was the inclusion of a number of handicap events disguised under the name of "Aerobatic pursuit." They were too long, for the last handicap race was a couple of laps of the course, and became tediously confusing to the spectators, but the idea was perfectly sound, and the method of handicapping by having all machines flown by an official test pilot was probably the best that could have been used for an entry open to the contest of all members of the country. No handicapper could have been acquainted with their previous performances. The essential idea was the same as that of the handicap races so popular in Great Britain and described by Capt. R. J. Goodenough-Crosby in the Aug. 30 issue of AVIATION, and it should be extensively followed with minor improvement in future races.

The layout of a course for a race is always perplexing. The spectators want to see the take-offs and landings, and to insure their safety and that of the pilots it is almost necessary to put the straight grain on the far side of the landing field. The layout used at Cleveland, with the pilot approaching the pylons on a course nearly parallel to the grandstand and then turning away from the audience is probably the best among a number of possible alternatives for most fields, and the turning point is satisfactorily unobstructed. The only disadvantage of the grounds for complaint only in the Mitchell Trophy race, on the pursuit machines had their racing numbers painted only on the side of the fuselage, and of rather small size there. Numbers on the lower surface of the lower wing should be rigidly exacted of every competitor in every race, and they should be large and

Some possible course arrangements, or at least some that have been suggested from time to time, are shown in a sketch herewith. In one case the path making an incorrect turn, such as was made by many of the pilots in competition, has been indicated. If all the turns were made along the wind path, entering the pylon directly and not circling beyond it, the pylon could be placed directly in front of the grandstand on the near side of the landing area. Since some of the competitors overshoot the mark as much as two hundred yards by far getting around, that location obviously becomes impossible, as their error would carry them directly over the grandstand. The same objection would hold against making the turn toward the crowd instead of away from it. Even if the turns toward the audience be more spectacular than the converse, the danger of overshooting the mark and in flying across the landing field and the grandstand is too great to allow the use of such a course.

The pilots practically never fly too wide in approaching a pylon. All the important deviations from standard course are the result of flying too far past it before completing the turn.

One profoundly important subject, pertaining to a general way of public relations and to the attraction of the races as a spectacle, has been thus far passed over without comment. The management of future years will have a very serious problem in deciding on the distribution of effort between competitors and aerobatic exhibitions and other act shows.

It takes but little energy to develop violent differences of opinion upon that subject within the industry. There are those who believe that the progress should be continued as at present, with racing forming a principal feature. There are others who are opposed to any showing under any conditions, whether by civilians or military pilots, and also to all military display. I personally hope that displays of soaring with civilian planes can be entirely eliminated in future years, and that the only place the Army and Navy for assistance in flying out the program can be demonstrated as coast and airship, although some samples of the Army's and Navy's air work should regularly continue a feature at least for a few years to come. Admittedly the spectacle given in the race program is necessary to attract the crowd.

The balance has to strike spectators between so much hopelessly effort that there would be an unfavorable reaction upon aerobatic development, and so little display that audiences would not turn out well enough to make the show worth while and amply pay for itself. It seems probable that the amount of stand display required to draw very substantial, fully reduced from the schedules of 1938 and 1939 without dangerously reducing the attendance. To reconcile great public interest with a reduction in the number of "thrillers," however, demands that the races themselves be given more popular appeal. There is nothing to attract the layman in a parade of unadorned airplanes.

That is the real heart of the problem. No effort must be spared to make the National Air Races more interesting as races. The search for improvement as that head should be constant.

Concluding these somewhat random observations, I am anxious to emphasize by reiteration what was said in opening, that the race management deserved high praise. It was inevitable that there would be flaws in any part of the sort, and they ought to be recorded, but the general average effect was unreservedly good.

THE SCHNEIDER CONTEST IN Retrospect

By Aviation's
BRITISH CORRESPONDENT

A FULL DESCRIPTION of the actual race incidents of the Schneider Trophy, flown over the Solent on Sept. 7, will not be needed now but there were many incidents not referred to in the world news—what have a distinct technical interest and among which was a last minute change of a completely different kind of the Rolls Royce engine in the winning machine. Flying Officer Waghorn's Supermarine 56

It will be as well to put on record that the winning speed made up by Flying Officer E. R. D. Waghorn on the Supermarine-Rolls Royce machine was 326.63 m.p.h.; that his companion Flying Officer R. L. R. Atcherley returned a speed of 325.54 m.p.h. but was disqualified under circumstances which will be described later, and that the deal between the old Supermarine-Viper airplane of 1927 flown by Flight Lieut. D'Arcy Grey, and Waghorn's Officer Ed. Molina, flying the improved Merlin of 1937 now known as

lap of the Contest. Every world record ever made went smash in Waghorn's first lap, and the technical readers of AVIATION will appreciate the thrill of such which went through the British air world as that wonderful speed—or so it seemed in the first lap—of 324 m.p.h. went up, and also the anxiety as to whether the engine would stand the pace. We did not know then that Waghorn could not fly the Rolls Royce engine

full out for two very good and sufficient reasons. The fuel tankage in the floats was not sufficient for 230 miles at full throttle and the cooling area of the water radiators equally was not enough to enable the engine to be run at least 100 rpm below the maximum. He kept his water temperature at 95 deg. C, but Atcherley, whose radiators were more efficient, kept up to 110 deg., and his just made the difference between the two speeds. He, of course, could take more risks for Waghorn had already retained the



The British team that competed in the 1933 Schneider Trophy Contest. Left to right: Flight Lieut. D'Arcy Grey, Flying Officer E. R. D. Waghorn, who piloted the winning Supermarine 56, and Flight Lieut. R. L. R. Atcherley.

Major De Bernard's second breaking machine ended in the latter achieving an average speed of 284.2 m.p.h. as against the British figure of 282.1 m.p.h. Going down the 1937 airplane at just a mile an hour faster than Flight Lieutenant Webster's time in 1935 on an identical machine, except that the engine gave possibly 20 hp. more and burned more fuel.

A remarkable feature of the Contest was the surprising uniformity of the top times of Grey and Ed. Molina, the steady way in which Waghorn, first off the mark, increased his lap speeds to a maximum of 330.1 m.p.h. and the brilliant piloting of Atcherley, who flying without goggles and therefore totally blind, put the lap speed up to the astounding figure of 332.49 in the last

Trophy for Great Britain, and actually there was a sufficient margin of fuel as Waghorn measured his lap and flew three quarters of another lap when his fuel gave out and he had to sit down on the water, thinking he had lost the race when he had in fact won it by an unobtainable margin as events quickly proved.

THE JUDGMENT, as I suggested in my earlier article, never looked like winners for we knew that their engines, those Franklin 18 cylinder Grand Arrow type, were not supercharged, they could hardly develop more than 1,750, which we heard was the real figure, and we knew that the Rolls Royce could produce nearly 2,000 hp. if pushed, and as the race itself would give

anything from 1,000 hp. onwards. Even assuming equal horsepower, the Marché G7 propellers were not so clean as ours, did not show such appreciation of the finer points of interference in relation to load resistance, and when they started our main concern was not that they would burst in but that once the terror of their true speed was in the minds. They ought to be able to do better than 284 and 301 m.p.h., the only figures available, as each machine completed one lap only, but a generous allowance of another 20 m.p.h. gives only 320 m.p.h. and, as the faster machine retired with a burst water pump and a swollen aileron, the difference is that the engine was becoming very much overburdened as the effort to average 300 m.p.h. Lieutenant Cadwalher, who reached 284 m.p.h. only, was reported to be running an engine which was down in horsepower, and as he flew in a cloud of thick black smoke it was evident that there was something out of tune in combination or air circulation at least.

He made a phony effort but retired blinded by the smoke from the exhausts and half suffocated by the fumes simply because the Italians had left the exhaust ports on the centre cylinder block on the wrong side for the designers. Why they did so is a mystery, for the Napier Lion people, who would have been up against the same trouble in the Gloster-Napier, had re-designed their whole centre cylinder block, shifted the exhaust ports on the other side, and thus gave the pilot an entirely free voice unimpeded by any smoke or fumes.

It is not the British way to reject even a rival's achievements, and everywhere at Calicut the gliding, good sportsmanship and skill in piloting of the actual Italian team was freely commented upon and admired, but it is germane to point out first on the technical side Italy was thoroughly and handsomely beaten in every way. Not one of their new airplanes lasted for much more than a lap, whereas the whole British team finished without any trouble whatever, and I think I am right in saying, established another and unofficial record—that of every airplane entered finishing the course.

NOW to move to a more chronological order. The (probably) trials held in no connection to every machine passed only. The sun was smooth but not just enough "poppy" to help muzzling and the visibility was good and the wind about 10 m.p.h. The Gloster-Napier made an extremely bare effort to get rid of its variable carburettor system, and was brought out with projecting wings on all the three air intakes directed presumably to force air into the intakes under all flying conditions. As would the trouble on the ground several times, and, in fact of hope, Flight Lieut. G. H. Staithforth went for a flying test. The result was an improvement but still the trouble was not entirely cured, and as the subsequent effort to attain cruise speed over the three kilometre



Flying Officer Waghorn finishes his Supermarine 40.

course proved, the Gloster-Napier is not as fast as the Supermarine. Flight Lieutenant Staithforth broke all cruising records with an average speed of 230.3 m.p.h., but the Supermarine airplane easily outstripped that at 255.9 m.p.h. and even that did not represent the true speed.

The morning test was more a formality, and then when all the machines came back to the hanger a remarkably fine piece of work was carried out by the Rolls Royce team. Flying Officer Waghorn had reported at the end of the muzzling trials that the engine did not seem quite so sweet as usual, and mechanics at once began a careful overhaul. At midnight they found that part of one of the sparking plugs had disappeared, had been chucked around and had evidently scored the cylinder. Now, each set of six cylinders is cast as a monobloc so as to make dismantling one complete side of the Vee. But such is the skill and care of the design that the operation is relatively simple. Long steel bolts hold a thin aluminum shell down on the monobloc, and, in effect, clamp each cylinder barrel between the monobloc and the cylinder head.

Fifty Rolls Royce mechanics had come from the works at Derby to see the race the next day. They were hardy, well-dressed, and between 2 a.m. and 6:30 a.m., a dozen of them had the block off, changed the defective from, replaced the whole outfit, and had given the engine a completely satisfactory run up. The great public who saw the race on Saturday had no idea of how narrow was the escape, for while Anthony should have won the race, he passed inside one of the mark boats and was therefore disqualified. This was not what we had expected of this pilot, and only afterwards did we learn that just as he was passing over Hyde Park, he pushed his goggles up for a moment to clear them, peered round his windshield and the terrific airblast tore the goggles off his head. He was then less than a minute and a half away from the Newmarket zone, and he told me afterwards that he realized that he was in danger of coming inside it. He turned to the right, but as he actually passed over it on a vertical bank, he was afraid he was still on the wrong side. This move had put him off his true course with the result he went miles wide of the race turn at Harewood Island and so added to his distress while he was also struggling, unsuccessfully as it proved to get a spare pair of goggles over his eyes.

This fully explained his extremely poor first lap speed, and it speaks volumes for his skill as a pilot that he flew the rest of the race blind, that is, he never once dared look out sideways and ahead, but had to steer entirely by such means as he could so obligingly through the wilderness. To have put up a record like that under these circumstances was a miracle, and the British spectators generally felt that it had been a very fitting

and felicitous conclusion to the race that the honors should be shared between Waghorn and Anthony, the one retaining the Trophy and the other making world records over 100 km. of 331.75 m.p.h.

Anthony, it turned out, was able to fly his machine at slightly more power as his water radiators were more efficient. His Supermarine had the loosest shaped radiators laid on flat plates along the sides of each fuselage, whereas Waghorn had flat radiators placed on the upper surface of the nose of his fuselage. These it was expected would have been more efficient but this was not the case in fact, and whereas Waghorn ran his engine with a water temperature of 95 deg. Anthony worked at 110 deg. Of course Waghorn being first away naturally had to fly a more cautious race than Anthony, who could afford to go all out within the limits of his fuel and engine capacity.

It is clear now, as I mentioned before, that the prospect of securing greater speed leaving out any new conceiv-



Anthony seated in the ship in his Marché 67.

tion in design is scarcely headed up with water temperature so that the radiator surface is the main limiting factor. The British team had their throats set to give a certain assurance of revolutions, and gradually all instruments were blabbed off to eliminate possible sources of trouble, and they, in fact, flew entirely by the water thermometer using their throttle entirely in accordance with those temperatures.

Both pilots after the race stated that they had experienced no discomfort of any sort, either in the torso or from fumes or undue heat in the cockpit of the S-6, a marked improvement upon the conditions of the 1937 races.

The propellers and were Parnis, Garbani type made under Rolls license, and the Parnis Avionique Goussard did some notably exact design, producing propellers to order which were within 25 rpm of the figure asked for. There was a big gap between the Rolls Royce engine, which, as I have already reported, was turning at 2380 r.p.m. in the race, and this was as noticeable that the great blades of the propeller could

be seen with the eye even when the machine was travelling at its highest speed, whereas the Italian propellers were merely a slight blur. One of the Italian machines was fitted with a three bladed propeller in order to reduce the diameter of the propeller shaft and so reduce the tip speed. A slight increase of efficiency was expected and apparently obtained, for this propeller was fitted to Monti's machine. The Italians undoubtedly suffered from lack of superchargers, and, also, all their engines were still of the direct drive type—rather an anachronism in these days of *propellers* driven.

AFTER A NOTICEABLE FEATURE was the ship in which the British pilots appeared the torso in a fairly close circle but without changing very much, whereas the Italian ship spun on the turn and then dived down onto the straight again. The policy had been decided by the most exhaustive tests over a measured distance with Calicut Calcut as the start of the turn. The point about the measure (distance at which the pilot completed his turn) was noted, the time taken, the degree of bank and the amount of acceleration imposed as registered by an accelerometer in the airplane, were all recorded. It was then a simple matter to decide which was the most profitable radius of turn to work to, and after that all the pilots conscientiously possessed that type of turn. The British, who will agree, at least are thorough, and when we do not see a man upon a job surface or left in a decision, we are sure that he has made a decision.

The speed record speed for itself, but it is puzzling at the moment to know why on the second attempt only 2 m.p.h. were added to the record, making it 357.7 m.p.h. Conditions of visibility were finished and on the first attempt when 355.8 m.p.h. was reached and accurate course keeping was impossible while very little advantage could be taken of the run down to the measured three kilometers. On Thursday Sept. 12, visibility was excellent, but it was a very hot day and this may have affected temperatures, though it should not have made any difference as there is ample opportunity to read the engine down between the runs. A different propeller was used and this may not have given quite the expected results, but in any case no further attempts will be made at present as the figure is sufficiently high to justify Great Britain writing next another nation has exceeded it by 1 m.p.h.

Italy is reported as having declared that she can reach 400 m.p.h., but if she intends to use the Hyde Fiat it would seem that substantial modification is controls must be made. And judging from its entry into the air, there may be yet a disappointment to come. There are some indications that the Italian team will make a whole lot of progress, but the air may splash off rather than flow smoothly. Of course the high loading speed of 128 m.p.h. gives the Hyde airplane an advantage at over for our machines not only land speed around 300 m.p.h. but are thoroughly prepared to handle the rough usage in the practice and the race period. The Italians were devoted to fly the Fiat in or about our waters.

Still, the Supermarine S-6 can be improved in many ways when a pure speed race only is in question and Great Britain is greatly confident that when the autonomy comes much more specific can be secured, such modifications as smaller torques, more efficiently fitted radiators, and different propellers. The Rolls Royce racing engine, too, is only at the beginning of its life, and undoubtedly it can be boosted to give much more than 2,000 hp. for short spells, whereas at the race the main considerations were power and reliability.

THE FIFTH ANNUAL

Ed Ford, manager of the
5th National Air Tour



National Air Tour

By JOHN T. NEVILL

FOR THE FIFTH CONSECUTIVE YEAR, pilots representing manufacturers of America's commercial airplanes will assemble at Ford Airport, Detroit, just previous to Oct. 5 to vie with one another for supremacy in airplane reliability and efficiency.

However trim the expression may be, the briefest way to describe the fifth annual National Air Tour for the Edsel B. Ford Reliability Trophy is to say that it will very likely be "bigger and better" than it has been in any previous year. Immediately following last year's Tour there were a number of comments from varied sources to the effect that the Tour had served its purpose and that in all probability the last one had been held. These opinions arose despite the very obvious fact that the 1928 Tour had been, by far, the largest, longest, most hazardous, and most successful event of its kind ever held. Sixty-six hundred miles were flown by the National Air Tour entrants last year—a distance that covered there across 35 states, stops being made in 14 of them. The commercial airplanes traversed almost every conceivable kind of terrain, with the terrible hot below-sea-level Sixty-six hundred miles were flown by the National Air Tour entrants last year—a distance that covered there across 35 states, stops being made in 14 of them. The commercial airplanes traversed almost every conceivable kind of terrain, with the terrible hot below-sea-level Sixty-six hundred miles were flown by the National Air Tour entrants last year—a distance that covered there across 35 states, stops being made in 14 of them. The commercial airplanes traversed almost every conceivable kind of terrain, with the terrible hot below-sea-level

New comes the 5th National Air Tour, not as a celebration of any suggestion that the Tour has served its purpose, but as a demonstration that the National Air Tour will have a valuable purpose so long as commercial airplanes are manufactured in America. It was with this idea in mind that Henry and Edsel Ford personally took over the reins, and are "seeing the thing through."

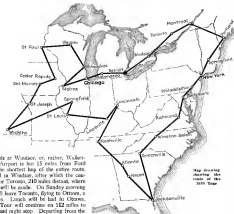
Present indications are that a total of 43 airplanes, entered by 21 separate manufacturers, will compete for

the trophy and the approximately \$20,000 in cash prizes distributed among the fashions. It is not likely that the list will exceed 44, as the "dead-line" of the entry was passed on Sept. 5. One manufacturer has reserved a place for one entry in addition to that delicately made by his factory.

Though the entry list this year exceeds last year's list by about 14 planes (29 having been actually entered in the 1928 event) the route will be somewhat shorter, being approximately 5,000 miles in length, and the scheduled time 17 days. Last year the Tour consumed 29 days. Thus the elapsed time has been reduced approximately 40 per cent and the mileage by only about 25 per cent, necessitating a more condensed flying schedule than was necessary last year. Whereas last year the Tour included 7 two-day stopovers, the 1929 Tour will have but one—that being in Atlanta, Ga., provisionally the halfway point of the total mileage. Just as last year's total of 29 entries decreased down to 25 starters, this year's classic may see a similar drop before the 5,000 mile classic is started. However, that is a tiny body, because of the prominence, stability and reliability of concerns entering their products this year and because of the effects of an additional year's experience. That statement is an reflection on the entrants of last year, for many of them are competing again this year, but was made with an eye on the fact that a number of planes competing in the 1928 Tour were owned by firms and individuals who owned the craft for the manufacturer, rather than by the manufacturer himself. This year the so-called "billboard planes" or "paternity ships" are taboo, and the responsibility for having their product on the starting line is solely up to the manufacturer.

Amongst its unprecedented number of entrants, the 1929 National Air Tour will have many characteristics to distinguish it from any Tour held thus far. Probably the foremost of these is that it will visit the Dominion of Canada, four stops being made in the Provinces of Ontario and Quebec. Leaving Ford Airport at 9 a.m., Saturday, Oct. 5, the

Tour



Map showing
route of the
1929 Tour

first stop will be made at Windsor, or, rather, Waukegan, Wis. Walker Airport is but 15 miles from Ford Airport, this being the shortest leg of the entire route. Lunch will be served in Windsor, after which the contestants will depart for Toronto, 210 miles distant, where the initial night stop will be made. On Sunday morning the touring planes will leave Toronto, flying to Ottawa, a distance of 200 miles. Lunch will be had in Ottawa, following which the Tour will continue on 112 miles to Montreal for the second night stop. Departing from the Quebec metropolis Monday morning the planes will re-enter the United States, covering 220 miles before stopping at Portland, Me., for lunch. After lunch another flight of 180 miles will bring the tourists to Springfield, Mass., where the night will be passed. New York, 100 miles by air from Springfield, will be the lunch stop on Tuesday's flying program, Tuesday night finding the Tour at Philadelphia, 90 miles farther on. (Central airport at Camden, N. J., incidentally, will be the actual landing place for the Philadelphia stop.) On Wednesday, Baltimore, Md., 97 miles, and Richmond, Va., 130 miles from Baltimore, will be visited. Richmond was the night stop.

After taking off Thursday morning, and skirting the famous Blue Ridge Mountains southwest and westward, the commercial armada of the air will visit Winston-Salem, N. C., 185 miles distant, for lunch, then continue its approximate direction to Greenville, S. C., 150 miles from Winston-Salem. Savannah had originally been listed as the Friday landing place, but due to the inability of Savannah to guarantee the condition of its airport, Augusta, 125 miles from Greenville, has been chosen as the first Friday stop. Saturday morning, after one week's flying, the Tour planes will leave Jacksonville, heading northwest, and completing a long 205 mile jaunt to Miami, Ga., before lunch. A short 74-mile flight to Atlanta, Ga., will complete the day's work. In Atlanta, where the contestants and Tour personnel will be guests of Walter Chandler, Coca Cola manufacturer, the Tour will remain until Monday morning.

The tomorrow hop on Monday's program will take the

convolute to Martinsburg, Tenn., 200 miles from Atlanta, and only 20 miles from Nashville. Nashville, in fact, is generally recognized as being the day's noon stop, although Martinsburg is a well-known title city of 30,000 persons, and, according to Captain Collins, boasts of one of the finest airports throughout the Tour route. The Monday afternoon flight is one of 250 miles to Cincinnati, Ohio, where the night will be spent. A 97-mile hop to Louisville, Ky., followed by a long 258-mile journey to St. Louis is on the bill for Tuesday. The Louisville-St. Louis flight will be the longest of this year's Tour.

HAVING ARRIVED in the heart of the Middle West the National Air Tour pilots will be in very familiar territory, that region of the country, particularly Wichita, Kan., having been visited by the National Air Tours more often than any other locality. After remaining overnight in St. Louis the pilots will take off Wednesday morning and go to Windsor, making a lunch stop in Springfield, Mo. Springfield is 182 miles from St. Louis and Wichita is 216 miles from Springfield. Thursday will see the planes push northwest again, stopping at St. Joseph, Mo. (193 miles), for lunch, and at Des Moines, Ia. (144 miles), for the night. An enroute by northward jump to Cedar Rapids, Ia., 97 miles distant, and a lengthy 216-mile hop north by west to St. Paul, Minn., is on Friday's card.

Because of the recent death of Maj. John P. Wood, last year's Tour victor Saturday's itinerary was in doubt

for some time. However, Warren, Wis. Wood's headquarters, 185 miles from St. Paul, has wired Capt. Ray Collins, Tour manager, that "Woods will carry on as usual to be John's wish. Bring on the Tour." So Woods is on the itinerary for a fourth stop, the program there calling for a tribute to Wood before resuming the course in Milwaukee, the Saturday night stop. On Sunday the pilots, now wearing the freckling part, will end upon Ashland, Ill. 180 miles southwest of Milwaukee then double back to Chicago, 155 miles east and north of Ashland. In Chicago the pilots will land upon the new Carver Field, near Evanston, the airport being formally opened on the occasion of the Tour visit. A noon stop-over in Kalamazoo, Mich. 120 miles from Chicago, and a final flight 125 miles in length, will bring the party back to an airfield point. The log of days, figures in the foregoing paragraphs, are taken principally from Capt.



Capt. Frank Hawks
Tour Manager
L. H. Brown, Jr.
L. H. Brown, Jr.
The first Tour pilot



tain Hawks' log during the path-finding trip and are an official.

The finish of the 1939 National Air Tour at Chicago is building a magnificent celebration in honor of Theodore V. Edison commencing "Light's Golden Jubilee" the fiftyth anniversary of his invention of the incandescent lamp. It is planned to have the arrival of the Tour planes fit into the day's program. President Hoover has been invited to Detroit to take part in the Edison celebration, and there is a possibility that he may be on hand to greet the Tour pilots. The President may also greet the National Air Tour at Cincinnati on Oct. 15 as he is planning to be in that city then to make an address.

ONE IMPORTANT FACTOR in the 1939 Tour is that it will visit a section of the United States never before visited by the annual reliability drive. From Baltimore to Norfolk, via Richmond, Winston-Salem, Greenville, Savannah or Augusta, Jacksonville, Miami, Atlanta, and Asheville, there is virgin territory insofar as the National Air Tour is concerned. However, after the coming Tour is completed there will have been, last night of the 48 states that the National Air Tour has not stopped in or

passed over since the annual expedition was started by Henry Ford in 1929.

Still another outstanding feature may be the presence among the competitors of three auto-giros, entered by the Phoenix-Clerve Auto-giro Company, of Philadelphia. No doubt these craft will attract a great deal of interest, were, except for the vicinity of Philadelphia and the exhibition of one at the Cleveland air races, they have been confined to a limited audience. The interest perhaps will be even lesser "in the truck" than among the lay public, due to the fact that it will mark the auto-giro's first appearance as a competitor in an aircraft race in this country. It is understood that one of the auto-giros will be flown by Javier Juan de la Clerve, the inventor, and it is probable that the other two will be piloted by Harold Pittman and James G. Ray of the Pittman organization, both of whom flew early model Pittman airplanes in the Tour of 1936.

Along with the auto-giro other entries that are certain to create considerable interest in the industry include the Lusca-Corner Pegasus II, the performance of which never is yet known, the Curtiss Condor, great transport never before entered in a competitive race, the Curtiss Thrush, a J-6 powered six-place cabin monoplane and "log chaser" in the Tulsa, the Houser commutal biplane, powered by a Pratt & Whitney "Hornet" engine and the

new "Hornet" powered Ford 8-AT. In fact of the Ford line.

As we glance down the list of manufacturers entering planes in the coming Tour we find a majority of them are companies never having competed in the National Air Tour before. There are 12 such among them being Cessna, Lakota, North Coast-aero, Boeing, Cessna, and Curtiss Aero and Motor. The latter three, it will be noted, have been drawing their primary attention in the past to military craft, while the former three are newcomers to the industry. Then we see two companies, "Towle" Air and Pittman, that are returning to the Tour after having absented themselves from it during 1937 and 1938. The other seven companies, Waco, Bellanca, Lockheed, Ryan, Fairchild, and Alexander, are ones who might be termed "old stalwarts" although Bellanca and Lockheed competed for their initial time last year. Fairchild Airplane Mfg. Corp. has reserved places for at least two, and possibly three entries, but descriptions have not yet been received.

So far as is known now Miss Annela Barlett is the

only woman pilot who has signified her intention of competing in this year's Tour. It seems a certainty, however, in view of the skill and courage displayed by the ladies competing in the women's transcontinental derby to the Cleveland National Air Races that more than one woman will take part. Last year Mrs. Phoebe Fairgrave Chase flew herself and her little two-seater across a front stage, and it would seem to the writer that America's stock of aviators as well as the manufacturers would regard this possibility as too valuable to overlook.

Spreading of publicity, Manager Ray Collins has adopted a new method of publicizing the Tour. Publicity being a valuable part of the return expected by each manufacturer for his investment in flying the Tour, Captain Collins has seen to this detail by employing the firm of H. A. Bruno-R. R. Rydic and Associates, of New York, specialists in aviation public relations work. Dick Rydic and Mortimer T. Adams, of his staff, are already functioning in that capacity. A total of six or more planes will accompany the Tour as non-competitors to carry the Tour officials, press representatives and service men. One of these will be a Douglas D-2 piloted by Lunt, Wallkill, Brooklyn, U. S. Army, which will carry Captain Collins. Another will be a Lockheed Air Express, flown by Capt. Frank M. Hawks, the Tour Referee. The third will be a Fairchild KR-3, carrying Rydic, who will precede the Tour by 48 hours in order to supply the daily papers with accurate information as to the Tour, planes and contestants. The fourth will be the Ford biplane, "Prestone," designated as the official press plane. A fifth and a sixth plane, a Ford bi-engine and an Army Fokker bi-engine respectively, will carry Tour officials. In addition, there may be two or more other planes to carry mechanics from the various engine factories.

Interesting changes in the rules this year were out-

lined in detail by this writer in the June 1 issue of AVIATION. However, a brief summary of them may be convenient and relevant here. The first change is that "letters of credit" are issued and Approved Type Certificates issued not later than Oct. 1 are disallowed on all entries. The second has to do with the scoring formula, one-half stock being used instead of the full stock rate. Thus the new formula reads:

$$\frac{(\text{Max. Dept. of Cert. Usable Load}) \times (\text{Max. Speed})}{(\text{One-Half Stock Rate}) + (\text{Usable Time})} = \text{Figure of Merit}$$

Multi-engine planes able to fly without any one engine dead are given extra credit.

ANOTHER CHANGE is that the start of the Tour from any A. A. control-point along the route may be deferred at the discretion of the Tour Manager and Tour Referee, without consulting any of the pilots, "but only in the event of inclement weather, or other questionable conditions." A new and interesting addition to the rules is that competing planes will be refueled and stacked down upon completing any day's flying, and no mechanical work will be allowed to start upon them until a time two hours previous to the scheduled starting time of the Tour for its next control point.

Beside having Captain Collins, who is manager of the aviation department of the Union Trust Company and director of the newly created Michigan State Board of Aeronautics, as manager and Capt. Frank Hawks, holder of both transcontinental speed records, as referee, the 1939 National Air Tour is being sponsored by an imposing group of Detroit financiers, headed by William B. Mayo, chief engineer of the Ford company. It is sanctioned actually by the National Aeronautics Association.

ENTER LIST FOR THE 1939 NATIONAL AIR TOUR

| Rank | Name | Address | Pilot | Plane | Type-Plane |
|------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 1 | Good (Auto-Aero) Corp. | Good (Auto-Aero) Corp. | Good (Auto-Aero) Corp. | Good (Auto-Aero) Corp. | Good (Auto-Aero) Corp. |
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GENERAL NEWS



Open Kansas City Meet and Reunion

Long Wind Circular Derby; Gassel in Race From Mexico

KANSAS CITY (AP)—With a full program of events for the first three days, and a generous schedule of races and special features for the remaining five days, the International Air Circus and Pilots' Reunion was opened at Plattsburgh Airport Sept. 21. In addition to the air events, there is an exhibition of the aircraft hangars, offering to visitors an opportunity for close-range inspection of planes, instruments and parts while the audience aerial spectacles were still fresh in their minds.

The first event was a dead stick landing contest, followed by aerobatics, loop landing contest, free flying, dog fight, parachute jumping and delayed parachute jumping exercises. In the first round, strange old timers, Col. Anthony Gassel's flight to Havana was shown in fireworks.

Colonel Gassel landed was in Mexican City, preparing to start with the other contestants in the air derby from this place Sept. 24, to arrive in San Diego. Other entries included Col. Roberto Perez, Capt. Luis R. Verdugo, Col. Armando Perez and Capt. Julián de la Torre. Also, all of the Mexican Air Force.

Pat Low, Richmond, Ind., was the first to take circular climb, started here Sept. 21, made a loop with stepping points at Topeka, Kan., Shawnee, Okla., Killebrew, Cal., and Miami, Fla., and returned here Sept. 22. William Oak, Kansas City, was second. J. M. Johnson, Kansas City, third, and Tex La Grone, Kansas City, fourth. A prize was offered by Gordy-Groom Company, maker of Mustang radio. Like Chesapeake, designer of the contest committee of the National Aeronautics Association, in the official report of the event, but no exhibition and other details were given in Aviation for Sept. 14.

Aluminum Industries Buy

CINCINNATI (AP)—Duffell orders sufficient to keep the plant operating at capacity for the rest of the year are reported by officials at Alcoa Aluminum Industries, Inc., following the return of Chief Engineer M. A. Jackson from a trip to various plants affiliated with the automotive industry. At the Beckman Street plant, the company is executing contracts for Plymouth patterns for a new and larger engine being added to the line built by Ford Motor Aircraft Engine Corporation.

Offers New Indicator Compass

NEW YORK (AP)—A new earth indicator compass is announced by Consolidated Instruments Company of Astoria, Philadelphia, a manufacturing and research division of Consolidated, has developed the new compass.

Navy Accepts ZMC-2; Was Insured for Tests

WASHINGTON (AP)—Following several tests the United States Navy Department has accepted the ZMC-2 aircraft design, according to announcements here.

Work is also received from New York City, Barber & Baldwin, Inc., underwritten, already has insured the aircraft for the entire series of test flights. The new aircraft, valued at \$240,000, was ordered for this amount under a comprehensive policy protecting against fire, structural damage to the civil, war, public liability, and property damage.

Barber & Baldwin was advised on the same by Aero Engineering and Advisory Bureau, which studied the risk carefully before recommending its insurability.

Insurance was made in favor of the Detroit Aircraft Corporation and/or the Aircraft Development Company under the United States Navy, receiving all test flights during two months, making delivery.

Consent Firm Acquires Krenator

LOS ANGELES (AP)—Approved by a consulting engineer in Joseph Krenator Corporation, Inc., announced by Ballard Transportation, president of the Valley Portland Cement Company. Mr. Krenator has stated that the group which developed the Krenator to expand Air Coach will be retained until that several nationally known executives will be added to the organization in a program for expansion of Krenator activities. Mr. Krenator, former president, will act as chairman of the new board of directors. Other officers include: Mr. M. H. Jones, vice president; C. W. Williamson, secretary; Nathan Newby and J. C. Howard, directors. Manufacturers of the in-flight Krenator Air Coach, powered with three 90 hp. Lycoming or three 100 hp. engines, will be contacted with other models to be announced soon.

Bureau & Goss Changes Name

SEATTLE (WA)—Bureau & Goss Aircraft, Inc., this city, has changed its name to Seattle-Victor Air, Inc.

To Produce F-32's In Los Angeles Plant

NEW YORK (AP)—The Los Angeles will be the location of a new \$300,000 factory to be built by Fokker Aircraft Corporation for the construction of Fokker F-32 transport planes, according to an announcement by Harry M. Hanes, president, and J. A. Talbot, chairman of the board, following the new factory in part of a program of expansion which will be adopted in cooperation with the Fokker company's affiliation with General Motors Corporation.

The new factory will be constructed on a 20-acre tract adjoining Alhambra Airport of Western Air Express. When the factory is opened, it is planned to employ 500 men to make possible a production schedule of one of the big transport planes per week. It is probable that this schedule will be doubled within twelve months.

Western Air Express, of which Mr. Hanes is also president, has ordered one of the new planes, which will be placed on the routes between Los Angeles, San Francisco and Kansas City next spring. The new air bus has a capacity of 30 passengers and a crew of four in daytime flights, and will provide sleeping accommodations for 100 passengers and a crew at night on night flights.

The Los Angeles factory site is approximately 10 miles from the Western Air Express field by the right of way of the Pacific Electric Railway. In order to connect the factory with the field, an overhead trolley has been devised which will permit using the great planes over the poles and power lines of the trolley lines.

Groom Moving to Michigan

DELEWILLE (AP)—American Groom Engines, Inc., has begun its removal from the local plant to the old factory of the former automobile factory at Marquette, Mich., which will be its future home. The Marquette plant provides 245,000 sq. ft. of floor space in two three-story brick structures. Production will be in full swing at the Michigan city within a few weeks, it is announced. The American Groom company is a subsidiary of Allied Motor Industries, Inc.

Chevrolet Plant at Indianapolis

INDIANAPOLIS (AP)—The new Chevrolet plant at Indianapolis is expected to start production here by Arthur Chevrolet Aviation Motors Co., which is now being constructed and was dismantled in a new Travel Air low-wing plane at the National Air Races.



Fokker Firm Offers F-14 Patrol Mail Plane



PETERBORO AIRPORT (AP)—Need of Anthony H. G. Fokker's F-14 patrol mail plane, now offered to the market.

Of patrol construction it is a high speed plane with an estimated top speed of 140 m.p.h.

The patrol wing construction is a departure from recent Fokker designs. The tail section type wing of all wood veneer covered construction is

raised from the fuselage to give forward vision to the pilot, whose cockpit is at the top of the column.

Orders for six of the new F-14's have been received from the Western Air Express and ten from Western Canada Airways, Inc. The new F-14 is optimally powered with a Pratt & Whitney Hornet, or a Wright Cyclone. It has an adjustable propeller, electric starter, and heater magnets.

Irvin Firm to Offer Two New Parachutes

BUFFALO (AP)—Successful test of two new models of Irvin Air Chutes have been made here, according to an announcement by George Wenz, president of the Irvin company. Production of the new parachute will be started as soon as patent papers have been filed. In the meantime, details are being worked out.

Recently, orders for 300 Air Chutes have been received. Curtin Flying Service ordered 200 and Colonial Flying Service and Ludhiana Philadelphia Flying Service, 80 each. Exports and sales offices of the Buffalo plant have been moved in order to make possible increased production. Leslie L. Jones, vice president and director of sales, reports that the new parachute is now started at the Warren branch and will be increased gradually to test parachute weekly.

Autogates Out of Tour PHILADELPHIA (AP)—The Pennsylvania Civil Air Guard Company announces withdrawal of the three new planes which were loaned as novelties to the National Air Races scheduled to leave Detroit Oct. 5. Out of two of the Autogates, however, may participate in the tour but that the two civil air novelties are not to be used. The withdrawal has been made necessary, it is reported, by a slight delay in delivery production which demands the first time.

Balloons Ready For Bennett Race

Additional \$500 Prize Offered by Alan R. Hawley

ST. LOUIS (AP)—Final arrangements are being completed for the Gordon Bennett International Balloon Race which is scheduled to start here this Saturday (Sept. 28). Those at the race will be replaced by a contest are representing the United States.

Alan R. Hawley, owner of the race, announces a new \$500 prize to the pilot who succeeds in breaking the European distance record of 1,234 mi. established in 1902 by M. Bismonte of France in a flight from St. Petersburg, Germany, to Moscow. This prize is in addition to that already posted by Hawley for a new American distance record bearing that of 1,373 mi. made by Augustus Fair and himself in 1910 in a flight from St. Louis to Northern Quebec.

The Commercial Air Board, under whose auspices the race is being conducted, is preparing to have balloons launched from the field. Teams will handle the automobile parking, and will pilot the balloons. Teams will start on Sept. 28, 10, will follow the balloons. The official starter is Maj. Albert Bond Lambert.

In an effort to increase interest in high-speed air craft to St. Louis efforts are being made to bring a great army of the type of ship here during the event. The New York Herald Tribune will send the "Los Angeles" and the new all-metal ZW-2, while visitors who have been dispatched to the Goodrich-Zenoplane, and to Scott Field, Ill., Army flight-theater base.

Five Swallow TP's to Bualey

MURKIN (AP)—Bualey School of Flying, this city, has ordered five Swallow TP's, made at Bualey Air Chutes have been made here, according to an announcement by George Wenz, president of the Irvin company. Production of the new parachute will be started as soon as patent papers have been filed. In the meantime, details are being worked out.

West American Firm Forming Coast Chain

SACRAMENTO (AP)—West American Airlines Corporation has been formed here with a capitalization of \$250,000 to operate routes and airports, taxi service, and to manufacture transport airplanes. The company has acquired Western Coast Airways, and is merging and operating Bualey Air Chutes, San Jose, San Jose, and other cities.

Equipment on hand includes three transport planes and five taxi planes. Further plans will be reported, and the service will be extended to San Francisco in the near future. It is also planned to operate aviation schools at each of the points. The company is now operating, is looking for the new aeroplanes.

Dayton Bears to Germany

DAYTON (AP)—Two Dayton Bear Dayton Bears have been shipped to Germany by the Dayton Aircraft Company. The purchaser is Bureaucratic Foreign Service, which plans to use the power plants in two types of sport planes.

Export Bellman Powermats

NEW CASTLE (AP)—A new aluminum Bellman Powermat airplane is being developed to International Airways Ltd. of Hamilton, Ontario, and the Bellman Aircraft Corporation, Inc. The Bellman Corporation, subsidiary of Bellman Bell Corporation, is a Bellman Powermat, which will be used in Bellman and other Central American routes. The Bellman Powermat is a Bellman Powermat, which will be used in Bellman and other Central American routes. The Bellman Powermat is a Bellman Powermat, which will be used in Bellman and other Central American routes.

Open Russell Plant in Canada

ST. JOHN'S (AP)—Russell Hamilton Industries, (Middleton, Conn.), has opened a Canadian plant at this city. Among the many items made by this firm are motor coils for airplanes, wings, airframe sections, purchase stream lines, and pilot's safety belts. R. L. Conroy is in charge of the new production of the Russell company.

Germans Developing South American Line

BERLIN (Continued)—Development of Luft Hansa's transatlantic service to South America is reported to be progressing. The project is being pushed to completion step by step in rapidly as problems of operational and political nature permit. Some of the most difficult problems are the latter, since the matter of an agreement with French authorities for landing rights in the Cape Verde Islands—such an agreement is essential to successful operation of the German line, but the French hold an exclusive contract with the Portuguese Government, so that as the case law and plans of the Compagnie Generale d'Aviation may lead to Cape Verde as a South American service.

Arrangements to remove this obstacle or provide a working agreement of some sort are now in progress. In the meantime the Luft Hansa is carrying out extensive tests with the Heinkel 10s, 12-passenger flying boat, for use on the water stretches, at the Atlantic, American, zone. The three Heinkels already owned by the company are being fitted out for the transport of mail and freight, rather than passengers.

These machines are powered by three B31W engines of about 800 hp. These are to be changed, however, to fit with engines having a net reduction power. The range without refueling is expected to be between 1,800 and 2,000 mi. One of the boats recently was considerably damaged when its engine failed on test flight and the machine was lifted from an altitude of about 100 ft. It is being repaired.

The tentative route for the South American Service is as follows: The present line operated by Luft Hansa between Berlin and Madrid, via London and the flying boats will take off for Cape Verde, from either Cadix or Seville at Seville. From Cape Verde the machines will fly to arrive the South Atlantic to South America and connect with the lines now operated by the Keesler Syndicate, which has a northern terminus at Philadelphia.

It may be recalled that one of our earlier analyses, recently completed, is flight of about 1,100 mi from Laredo to Philadelphia and return at an average speed of about 58 m.p.h. to average speed is 50 m.p.h. from Germany, over Holland, England, Norway, Sweden, Denmark and return—a distance of about 1,000 mi at the average speed of 52 m.p.h.

Bomber Building Two Do X

ALLENSTEIN (Continued)—The German plan to construct two more flying boats of the Do X type. As a body over 600,000 Reichsmarks is being allocated to the Do X, its stage plans are not expected to be ready for another two years or is expected.

Makes Inland Flight Record

BERLIN (Continued)—On Sept. 4 the German pilot, Gerd Achgelis, flew 30 min continuously in the aerial position using a Pister-Wilke "Kobalt" jet engine. He flew 1.5 miles. The record was held by the same pilot, Gerd Achgelis, with a record of 16 min.

Junkers Combat Plane Produced in Sweden

MALMÖ (Sweden)—L.A.B. Flygindustri, Swedish airplane manufacturing concern, has built four under license copies of the Junkers Ju 87, Stuka, a built-in 537 type of combat plane. The machine has a directly mechanical engine drive in addition to having a German machine built in Sweden, it has two British Jaguar 400 hp engines.

Designed at Dornier last year as a dual or dual purpose machine, it has been adapted by the Junkers to carry out a versatile flying machine. The machine consists of two fixed machine guns, front forward and rear, mounted on a swivel, and another in the forward rear cockpit. Still another fixed gun is placed to fire forward the rear.

A 2-ton gun is substituted for the part of fixed machine guns, which the plane is used for land-based use. The machine has a span of 65 ft. and length of 36 ft., a maximum speed of 148 m.p.h., a maximum climb rate of 138 m.p.h. Its absolute ceiling is about 23,000 ft.

English Mexican Co-Flights

MEXICO CITY (Service)—The Lloyds Mexican Aviation Company, which operates mail and passenger services between Mexico City, Tampico, Veracruz, Vera Cruz, Merida and San Cristobal, has made arrangements with the Mexican government for exclusive commercial rights to fly on its routes to the north.

Mexican Air Week Plans Stated

(Continued from page 627)
Hotel Rectoria Club Wednesday, Dec. 31, celebration of visiting planes. Thursday, Dec. 31, two flights, demonstration and exhibition. "Mexico Night" at the National Theatre. Friday, Dec. 31, air derby from Mexico City to Public City, Veracruz. Saturday, Dec. 31, air derby from Mexico City to Veracruz. Sunday, Dec. 31, demonstration by the Mexican army air service forces, which entertainment and banquet at night. Sunday, Dec. 31, air derby from Mexico City to Veracruz. Sunday, Dec. 31, air derby from Mexico City to Veracruz. Sunday, Dec. 31, air derby from Mexico City to Veracruz.

Foreign News Briefs

It is reported in England that a British company has acquired the airship plant at Cranston, August, Northampton, and will operate north of London, with capacity and 140 ft long fitted with a 25 hp. A.B. engine for carrying passengers, baggage carrying and advertising. The airship will be placed on the side of the ship for advertising and it is planned also to have other small advertisements.

United Aircraft Services now is operating a service between London and New York, carrying 6,600 passengers flying a total of 235,000 ft.

Members of the British Flying Club are working on a project to build a new plane, by a permanent construction of about one half of the cost, the type of plane being reported in a 2-passenger, 180 hp, machine of Belgian make. About twenty have been sold under this agreement.

Caracas, Feb. 11, the first of the new airport dedicated to Ciudad Bolivar, Maracaibo, on August 11.

Establishment of an aircraft factory in Mexico City is planned by J. D. Dwyer of the United States. He is said to be in the United States now arranging for the project.

A movement is on foot in Mexico to reduce the air mail rate from the present \$12 per pound to \$10 per pound.

A movement has been started in Santander, Spain, to concentrate the transatlantic flight of the French airlines, low level from Old Orleans to this point last summer.

A military plane recently flew the 1,100 ft between Baltimore, Maryland, and Paris, non-stop in 9 hr 20 min.

Flight Lieutenant R. B. Bentley has completed his second round trip between London and Cape Town.

Red gas was used in military airplane experiments over the Canadian Rockies, in British Columbia, with extensive precautions taken to protect people in the neighborhood.

Luft Hansa finds that package freight is more profitable to handle than passenger traffic, particularly for night flying, and is accordingly getting more freight planes into service.

The Munich airport, airplane hangar has 2,000 sq ft of floor space includes a single spot at night. The hangar can be opened completely on three sides.

The B-100 and B-101, Great Britain's new giant dirigibles, will be ready for flight tests next month, according to latest reports.

The A. W. Gregory Aircraft Company Ltd. has been formed at Sydney, Australia, to acquire the rights to build, operate and sell the new aircraft, and to acquire the sole agency for the Devolet Aircraft Company Ltd. of England.



THE BUYER'S LOG BOOK

A & D Hangar Door Drives

IN ORDER to save time in the process of opening and closing hangar doors, an electric power unit for the purpose has been developed by the Allen & Daws, Inc., 43-45 Brookfield St., Cambridge, Mass. This device is easily installed and requires no modification of the door system of the hangar.

The A & D "Motorized Drive" is made in units each of which is capable of serving an area of 1,000 sq ft. The device consists of a double, forged-steel mechanical to fit a 12 or 16 ft. and operates by worm gear in a half-inch housing. The worm is kept to the shaft connecting with motor through a special clutch and brake mechanism. The complete unit is mounted on a plate designed to occupy a central opening in a standard hangar door. For manual-the door is opened with a screw on ball thrust bearings and for weight.

For manual-the door is opened with a screw on ball thrust bearings and for weight. The unit is held securely to the door framework.

The A & D "Duplex Drive" unit is capable of serving an area of 2,500 sq ft. This consists of two double-



A photograph showing the A & D "Motorized Drive" installed on a wall of a hangar door.

dranged rollers machined to fit 12 or 16 ft. and each operated by a worm gear in a half-inch housing. Worms are kept on a single shaft connected with the motor through a special clutch brake mechanism. This unit is fully mounted on a plate replacing the lower corner of the door. For manual-the door is opened with a screw on ball thrust bearings and for weight.

Power is conveyed to these units through insulated flexible cables from several connections at ground points. These cables are kept taut by means of take-up devices on the wall or ceiling. Single button control can be mounted on the door or placed at any convenient point in hangar or office. If desired a motorized door can be

equipped with a small platform enabling the operator to ride with the door. In the event of power interruption, driving which can be released immediately and the door operated by hand.

Hangar doors at such a cost can also be opened and closed automatically, their operation being synchronized with that of the sliding panel.

These hangar door drives not only effect a saving in time but help to conserve the last of the hangars during the winter months.

"Eonite" Fire Proofing Liquid

KNOWN by the trade name "Eonite," a fire proofing liquid which is applicable to structural woods and fabrics is being marketed by the Eonite Chemical Corporation, Ltd., Los Angeles, Cal.

Eonite is made from a formula of Dr. O. T. Hodge and Dr. W. W. Stuart, Los Angeles chemists. It contains a dealer which fixes the chemical into the wood or cloth treated, so that water or the action of other elements only tends to improve the fire resistant qualities of the material.

Wood may be treated at a cost of approximately seven dollars per 1,000 board ft. while fabrics cost about five cents per square yard to treat. Materials so treated have been found superior in structural characteristics, with no greater electrical conductivity, and with the power of effectively resisting fire, fungi and dry rot. Fabrics so treated are as easily dyed and printed as though not impregnated. Experiments are being conducted in an effort to apply the fireproofing process directly to paints and dopes and it is believed that such a product may be placed on the market in the near future.

Standby Wire Vias

AN improved wire for holding cables during splicing operations has been invented by John O. Standby of Los Angeles and is being marketed through W. Buff, 265 South Broadway, Los Angeles, Calif. Patents have been granted covering this invention and several of the wires have been placed in service by commercial aircraft manufacturers and by the U. S. Government Air Service with a labor saving on cable splicing reported to be 65 per cent.

The Standby cable splicing device is manufactured in three sizes, the 3/8 in. 1/2 in. 1/4 in. instrument handling wire cable from 1/8 in. to 1/2 in. No. 1 weighs 6 lb. handles cables from 1/8 in. to 1/2 in. and is especially adapted for use in the aircraft industry. No. 2 weighs 136 lb. handles cables of 1/4 in. and is in use in saw mills, mines, quarries and shops, etc.

These wires are special steel instruments built to handle a work load. They incorporate hardened steel jaws and a single lever for operation of the wire making it possible to quickly handle the splices and to work in the proper position.



SIDE SLIPS

By
Robert R. Osborn

Having been away from the office for ten days or so, the following correspondence from T. G. and Anthony, St. Louis, Mo., Missouri, is getting about as late.

Apologies to your comments on the "St. Louis Radio" in Side Slips of August 15th, in the fact that I will not fall out of sleep, when, some more and so forth, we requested to put in as a side slip. We explain now that this is a new device, that applying to use a second hand motor or a third slip in making an electric record. However, I really don't know what we can do about it now and will leave it to you to make the suggestion. Perhaps we might make it in some future by having the pilot wear his own or carry a "Dover" pipe.

After careful consideration of all sides of the question we have decided to let the "St. Louis Radio" continue as it stands, even though an electric stove will not correct, judging by the full page newspaper advertisement which always appears after an endurance flight. It is necessary to carry an amounting quantity of items, such as paper, ink, equipment, chocolate, food, fuel and so on, which are absolutely essential to the success of the flight, and as even electric stove might well be the last thing. As it is an endurance slip some to read more fortunate than come over to the Mayflower.

An anonymous contributor sends along a shipment of an airplane accident which occurred because "the motor stalled and failed to glide." Somehow, we didn't expect that a motor would be a good one for gliding, but Fred Factor tells us that a motor which isn't good for anything is an even accident waiting for someone to drop it to about his feet or water.

A note and clipping from B. H. S. of Boston, reveals one of the outcasts crew ever left unloved by Standard Tank, and discloses still another aviation "victim" in the United States.

"Special Dispatch to the Globe, Rockland, Me. The first serious aviation accident since this city became an aviation center some months ago, took place near Rockland Headwater light last afternoon, when a postman, piloted by Louis, William Haskins, crashed into the water."

POSSIBLE SILENT TALKERS MIGRA BLIP TOO

"Countries saying the residents of Queens County to keep the streets clear will be dropped from an airplane on September 26th, before first service slip."

As further proof of our contention that the universal, high-class pilot has developed both forward and backward strikes with the fire extinguisher, and never uses blackboard, lead pipe or rubber bands in enforcing violations of laws, we have before us an item about a Chinese pilot who landed recently with two badly injured passengers. They had tried to take control over from him in the air, in order to get some tracks on their side, and the fire extinguisher proved to have just the right machinery and weight to enable him to dispatch both of them with one neat steam shot.

The following comes from J. R. H. of Chicago: "Allow me to quote from a recent issue of the renowned Chicago Tribune, first page, on line—'While the machine was in a ground loop it suddenly undid itself and started to the ground from about a hundred feet below about appearing a moment to give three landing solid gears over.' Can't have the boys falling in holes that way."

We think the reporter must have made a mistake in this case. The ship said have been taken down to the ground when the airplane happened.

We never were any good at figures, that is, we mean we never were very good at figuring, and we wouldn't have the solution to check all of the statistics below presented by B. A. S., even if we could, so we'll have to take his word for them and let them go. "Chicago is back tonight, for 'the ship' must be American. You will note from the attached clipping that Pilot Kenneth flew 53 miles in a plane, and that a few days later some other chap set an endurance slider record of 24 minutes, which equals that of 24 minutes, which is slightly less than 24 minutes, which is slightly

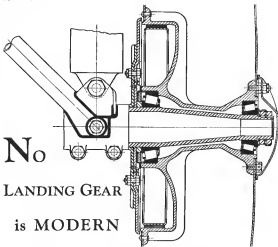
under 4 miles a minute or 240 miles per hour."

"That is obviously a much cheaper and quicker way to travel without one of the motor, and since Kenneth must have been slipped by so that flight. This ship again to go good here for comparison, and think of the speed you could make with no engine at all."

We agree with B. A. S. that this ship should certainly be popular with the so-called flying fraternity, but as the expert opinion of the country only. The California there aren't the least bit interested in flying if they haven't a motor to attach to a landing gear to repair to pass the time away while they're in the air.

The Society For The Aeronautical Education of Artists and Newspaper Reporters has unanimously awarded this week's body prize of a barbed wire basket award to the artist who drew the recent airplane advertisement bearing the heading: "In the air it's all—(a) a square of wire." Two or three hundred readers seem to have possessed on this construction—the drawing showing a ship randomly standing on the way out of what appears to be an open cockpit high above the clouds a relieving base into the rear cockpit. Except for the fact that the two ships really do look something like airplanes, the prize would have been awarded with poles.

"Los Angeles—One of the most unique religious services ever conducted took place in the robes of a Western Air Express rubber plane while it flew between Los Angeles and San Francisco, recently. The service was conducted by a minister —, known Japanese religious leader, who is making a tour of the world. While other passengers, who were for the most part business men, commenting between the two Pacific coast cities, smoked and chatted, Minister — sat quietly in his chair and passed for a "sobering" world." The little Oriental priest's practiced attitude finally earned itself on the other passengers and during the last minutes of the journey the robes of the ship was wrapped in silence. —, sent in by "A. W. Yerker" with the comment that here at last we apparently have the solution of the problem of effectively silencing airplane engines.



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The new Ryan Broughan, with its 300 horsepower Wright J6 Whirlwind motor, installed with proper relation to the ship's design, is making new performance and reliability records in the hands of crews everywhere. It takes-off in 275 feet and in 8 seconds' time, climbs 1200 feet per minute—ward lands in a 100-foot circle. It has a cruising speed of 120 miles per hour—and a cruising range of 700 miles.

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